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EVALUATION OF RADIOIODINE TEST FOR THYROID FUNCTION

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The purpose of this paper is to present the data obtained from the study of 152 persons suspected clinically of having some alteration in thyroid function. Within a few days the basal metabolic rate and protein-bound blood iodine level were determined and a study of the radioactive iodine uptake by the thyroid made in each case. These results were then analyzed in relation to the immediate clinical picture and the subsequent clinical course of each patient.

In the diagnosis of thyroid dysfunction, measurement of the basal metabolic rate has long been utilized as an office screening procedure. Its accuracy is limited, according to Roth and Roth,[1] by certain standard conditions required of the physician, the apparatus and, more important, the patient. Moreover, many types of patients have been found to be unsuited for this test (that is, asthmatic, neurotic and psychotic patients, children and patients with cardiac decompensation). A second diagnostic tool is the protein-bound blood iodine level.[2] Its use is somewhat more limited because of the highly technical laboratory procedures. The organically bound iodine level is, however, a more accurate indicator of changes in thyroid function. It compares favorably with the basal metabolic rate in the detection of thyroid disease.[3] With the preparation of radioactive iodine by Fermi [4] in 1934, an even more resourceful means of studying thyroid function was rapidly developed. This was followed by the use of radioactive iodine in diagnostic problems concerned with thyroid and extrathyroid abnormalities such as extratracheal carcinoma simulating thyroid enlargement and intrathoracic tumors.

Hertz, Roberts and Evans [5] in 1938 reported that the concentration of iodine in the thyroid gland is a biologically selective process. They pointed out that in experimental animals radioactive bromine was not taken up by the thyroid when it was substituted for radioiodine. This confirmed Marine's observations, which he reported in 1915,[6] that the thyroid gland is unique in its ability to selectively collect iodine in large quantities. Hamilton [7] in 1938 reported his observations on the rate of absorption of radioactive isotopes of sodium, potassium, chlorine, bromine and iodine in normal human subjects. The average time for absorption of radioiodine from the gastrointestinal tract into the blood stream was three hours.

In 1939 Hamilton and Soley [8] reported a method of measuring the I^{131} uptake in the human thyroid gland by placing a Geiger-Mueller tube over the gland at a definite distance, at a given time interval after the patient had ingested a small tracer dose of radioiodine. The urinary excretion of radioiodine was also measured. They found, by this in vivo method, that a comparison of the iodine metabolism in the thyroids of patients with varying degrees of hyperthyroidism, of patients with other types of goiters and of normal human subjects was possible without the removal of the gland. Measurement of the uptake of radioiodine in the thyroid region was utilized by Reinhardt [9] in 1942 as a means of determining the completeness of thyroidectomy.

Hamilton, Soley, Reilly and Eichorn [10] in 1943 reported their observations in a radioiodine study of children with hypothyroidism. They stated that it was possible to determine quantitatively, without surgical means, the concentration of radioiodine in the thyroid. By using a Geiger-Mueller counter as a detecting device, they were able to record the emitted gamma rays from the thyroid gland after the child had been given an oral dose of radioiodine. They found that thyroids of children with hypothyroidism were able to concentrate only small amounts of orally administered radioiodine, as compared with the concentrations in normal children and adults. An occasional iodine-hungry goiter in a hypothyroid child may result in an increased uptake.

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Hertz and Roberts,[11] in 1946, in discussing the use of radioiodine therapy in hyperthyroidism, noted that in vivo uptake studies of radioiodine in patients with hyperthyroidism are difficult to evaluate quantitatively. They determined the urinary excretion of I^{131} for seventy-two hours and estimated the thyroid uptake from this determination. The urinary excretion of radioiodine in various thyroid states has been carefully studied by many investigators. Keating, Power, Berkson and Haines[12] reported their studies in 1947 and presented excretion curves for radioiodine. Measurement of the urinary excretion of I^{131} is an indirect but satisfactory method for determining the presence of hyperthyroidism. In patients with hyperthyroidism they found much lower urinary excretion of radioiodine in forty-eight to seventy-two hours and much higher retention of radioiodine in the thyroid gland as compared with excretion and retention of I^{131} by normal human subjects.

Skanse and Riggs[13] in 1948 called attention to the use of the study of the urinary excretion of radioiodine to differentiate true thyrotoxicosis from alimentary or thyrotoxicosis factitia. In the true form there is a relatively low urinary excretion of radioiodine, while in the alimentary form the excretion of I^{131} is higher than normal.

Quimby and McCune[14] in 1947 used tracer doses of 20 to 40 microcuries of radioiodine in normal children and recorded the in vivo uptake in the thyroid gland. Children with disordered thyroid glands were studied in a similar manner. By placing a Geiger counter in a fixed position over the neck, they measured the relative percentage of radioiodine concentration in the thyroid glands of these children. These measurements were then compared with measurements made of the "administered doses" (standards) with a phantom setup approximating the geometric relationship with the patient. Total urinary excretion for two successive twenty-four hour periods was also studied for radioiodine activity. Normal children averaged about 12 to 15 per cent uptake of radioiodine in the thyroid gland. Hypothyroid children had uptakes as low as 1 per cent of the administered dose.

In May 1949 Oddie,[15] writing in the *British Journal of Radiology*, suggested that the in vivo uptake of radioiodine in the thyroid and the urinary excretion of I^{131} should both be determined if an adequate interpretation of results is to be obtained. He thinks that a seventy-two hour period is most accurate for determinations of uptake and excretion curves.

Werner, Quimby and Schmidt[16] in April 1949 reported the tracer I^{131} technic as a study of thyroid function in man. A normal uptake range was 10 to 40 per cent of the administered tracer dose at twenty-four hours. A small number of patients were in a borderline group: they appeared normal clinically and had uptakes between 35 and 40 per cent. These authors also stated that patients with certain diseases, such as acute thyroiditis, Simmond's disease (hypopituitary cachexia), Addison's disease and anorexia nervosa, show a low uptake and that previously ingested thyroid substances or stable iodine may depress the iodine uptake for several weeks.

It is evident from this review of the literature that two methods are available for the study of thyroid function in man with radioiodine. Since most reports deal with urinary excretion studies, either alone or in combination with thyroid uptake studies, we desired to check the accuracy of the uptake study when it is done alone. A group of 152 patients who were referred because thyroid disease was suspected clinically were given three metabolic tests within a period of a few days. These included (1) the basal metabolism test, (2) determination of the blood iodine level and (3) the radioiodine tracer or uptake test.

To the time of writing about 800 uptake studies had been done in the radiation therapy department. The technic has been well standardized, and the over-all evaluation of the results of this test has been carefully noted. Its consistency is striking. We are presenting this material to show: (1) the accuracy of the uptake study as compared to that of the basal metabolism test and the determination of the blood iodine level; (2) the pitfalls resulting from antithyroid medication, which gives a "false normal" uptake result, and (3) certain diseases simulating hyperthyroidism clinically in which there is normal uptake.

PROCEDURE

A complete history is recorded and a physical examination is made for each patient. If any previous antithyroid drug, such as strong iodine solution or propylthiouracil, has been ingested, this is noted. If the patient has had recent roentgen examinations, such as cholecystography, intravenous pyelography or iodized oil injections, these facts are also noted. This information is important, for we have found that antithyroid medication may give a "false normal" uptake in the radioiodine study. Likewise, if the patient has been given an opaque medium for roentgen study which contained iodine, this might give a "false high" blood iodine level, even though the procedure was done as long as two years prior to the blood iodine test. Our physical examination especially notes the size, shape and consistency of the thyroid gland, the presence or absence of exophthalmus, the pulse rate and rhythm, the presence of tremor of the hands and tongue and the patient's weight. The patient is then given an oral tracer dose of 100 microcuries of radioiodine.

PREPARATION OF RADIOIODINE TRACER DOSES

When the radioactive iodine is received from the Atomic Energy Commission in Oak Ridge, Tenn., it is calibrated into tracer doses. Each tracer dose consists of 100 microcuries of carrier-free I^{131} in 10 cc. of distilled water (fig. 1). These tracer doses are made up in a series of ten bottles. Each series consists of nine tracer doses and one "standard dose" bottle made up at the same time and in a similar manner to the tracer dose. Just prior to being put into use each series of ten bottles is calibrated, with the same phantom setup which approximates the geometric relationship with the patient (fig. 2).

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TECHNIC OF RADIOIODINE UPTAKE STUDY

The patient is given a numbered tracer dose orally. The uptake in the thyroid gland is measured twenty-four hours later, with an automatic scaler. The patient lies supine on the table. The upright Geiger-Mueller tube with a shielded window is fixed in a position 10 cm. above the midline of the thyroid gland (fig. 3). This technic has been described by Soley and Miller.[17] These authors used a longer distance from the neck to the tube. We found that a 10 cm. distance was adequate and less time consuming than a 15 cm. distance. Counts are taken in this position, and the number of counts per second is determined. A background count is obtained by similarly placing the Geiger-Mueller tube at a distance of 10 cm. above the patient's thigh, just above the knee. This measurement of counts per second is then subtracted from the original measurement of counts per second obtained over the thyroid gland. The difference gives the true counts per second coming from the thyroid gland itself. The bottle containing the standard for the same series of tracer doses is then again placed in the phantom position; the Geiger-Mueller tube is placed at the same distance of 10 cm. over the bottle, and the counts per second are recorded. The figure for the counts per second recorded over the thyroid gland is then divided by the figure of the total counts per second from the standard, and this result is multiplied by 100. This equals the percentage of the radioiodine tracer dose taken up by the thyroid gland. The following tabulation gives an example of this method in toxic patients.

Fig. 1.—Carefully measured, 100 microcuries of I^{131} is being added to a bottle containing 10 cc. of distilled water. These are made up in series of ten, nine of which are tracer doses, and the tenth a standard for comparison measurements.

Counts per second over the thyroid	31.8
Counts per second over thigh (background)	1.8
Corrected thyroid c/s	30.0
Counts per second of standard	40.0

$$\therefore \frac{30 \text{ (corrected thyroid c/s)}}{40 \text{ (standard c/s)}} \times 100 = 75 \text{ per cent, or uptake of } I^{131} \text{ by patient's thyroid}$$

ANALYSIS OF LABORATORY DATA

Normal Levels.—In this study a basal metabolic rate of — 20 per cent to + 20 per cent was considered in the normal range. The blood iodine levels were considered normal between 5 and 7 micrograms per hundred cubic centimeters. The radioiodine uptake normal range was from 15 per cent to 30 per cent. Basal metabolic rates below — 20 per cent were considered low, and those above + 20 per cent were recorded as high. Blood iodine levels below 5 micrograms per hundred cubic centimeters were considered low, and those above 7 micrograms per hundred cubic centimeters were considered high. Radioiodine uptake levels below 15 per cent were considered low, between 30 and 35 per cent borderline and above 35 per cent definitely high.

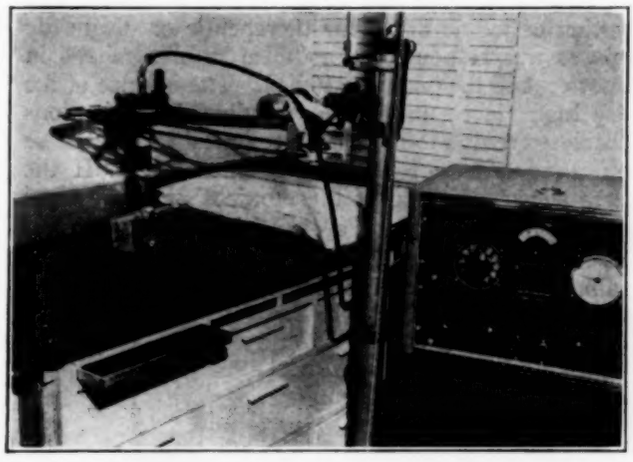

Fig. 2.—Standard being calibrated. The same geometric position exists here as exists in the actual measurement over the thyroid gland. This calibration of the standard is equivalent to 100 per cent.

Basal Metabolic Rate.—Figure 4 shows that the diagnostic error in the basal metabolism test was 32.9 per cent. A breakdown of this figure reveals that 18.4 per cent of all the patients had a "false high" basal metabolism reading, and 14.5 per cent of all the patients had a "false normal" or "false low" basal metabolism reading. These figures were all considered in relation to the patient's clinical picture and his subsequent clinical course. If, clinically, the patient was shown to have no hyperthyroidism, we considered a basal metabolism figure of over + 20 per cent as a "false high" reading. If his clinical course proved that he was thyrotoxic and his basal metabolic rate was in the normal + 20 per cent to — 20 per cent range, we considered this a "false normal" basal metabolism reading.

Fig. 3.—The radioactive iodine uptake by the thyroid is being measured. The counting tube is directly above the midline of the thyroid at a height of 10 cm. from the skin.

17. Soley, M. H., and Miller, E. R.: Treatment of Graves' Disease with Radioactive Iodine, M. Clin. North America **3**: 17 (Jan.) 1948.

Protein-Bound Blood Iodine Level.—The accompanying figure shows a diagnostic error in the protein-bound blood iodine level in 24.1 per cent of all patients. A breakdown of this figure shows a "false high" level in 15.7 per cent of all patients and a "false normal" level in 6.5 per cent of all patients. There was a "false low" level in 1.9 per cent of all patients studied. The ingestion of iodine drugs for therapeutic or diagnostic purposes was responsible for "false high" readings in 4.5 per cent of the patients studied. The balance of the "false high" levels in the blood iodine determinations probably were due to laboratory technical errors. There were three criteria for error classification: 1. If the patient showed no sign of thyrotoxicosis clinically and the blood iodine level was over 7 micrograms per hundred cubic centimeters, we considered this a "false high" reading. 2. If the blood iodine level was normal (5 to 7 micrograms per hundred cubic centimeters) and the clinical picture was that of thyrotoxicosis, we recorded this as a "false normal" level. 3. If the clinical picture was that of thyrotoxicosis and the blood iodine level was below 5 micrograms per hundred cubic centimeters, we recorded this as a "false low" level.

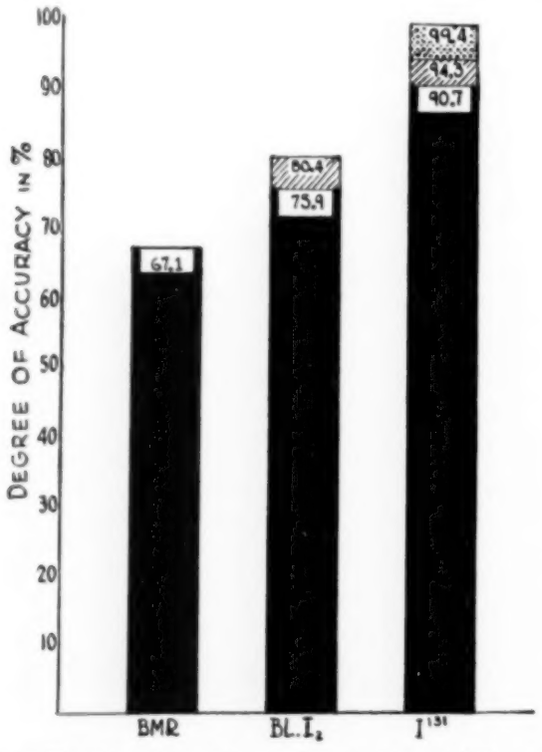

Fig. 4.—The relative degree of accuracy of the three metabolic tests, the basal metabolism test, the determination of the blood iodine level and the radioactive iodine uptake study, is shown. The heavy shading indicates the absolute accuracy. The diagonal-lined portion indicates errors incurred because of ingestion or injection of iodine preparation and because of antithyroid therapy. The dotted portion indicates the borderline group.

Radioiodine Tracer Uptake Study.—The accompanying figure shows a total diagnostic error of 9.3 per cent for all patients studied by radioiodine tracer uptake. If, by a careful recording of the history, those patients are excluded who had had recent antithyroid medication, such as with strong iodine solution or propylthiouracil, and who make up 3.6 per cent of the total group, then the diagnostic error would be only 5.7 per cent. Furthermore, if the group which we consider to be of borderline toxicity (30 to 35 per cent iodine uptake level) is excluded, then the actual diagnostic error of the test would be only 0.6 per cent. If there is any criticism regarding the accuracy of this test it is best directed to the small group of about 5 per cent of our patients who were in this borderline class.

We considered an uptake of I^{131} of over 35 per cent to be in the definitely toxic range. Usually, the greater the percentage uptake of I^{131}, the more toxic was the patient clinically, except for patients in the older age group with a "marked clinical toxicity picture." Only one patient in our entire group had a "false low" radioiodine uptake which was not due to previous antithyroid medication. This was a patient who was obviously toxic and who had previously undergone thyroidectomy for toxic goiter. The uptake of radioiodine in this patient was 1 to 2 per cent, as recorded over the anterior portion of the neck. The possibility of aberrant thyroid tissue in this patient was considered but not proved. There were no "false high" radioiodine uptake levels recorded.

Thus the following facts appear in the diagnosis of thyrotoxicosis: 1. The basal metabolism test is accurate in two thirds of the patients studied. The error in one third of the group studied may be due to the well known technical difficulties in the metabolism test and/or to improper preparation of the patient or failure of the patient to follow orders prior to the test. 2. Determination of the blood iodine level appears to be accurate in four fifths of the patients studied. The error in one fifth of the total group is most likely due to technical difficulties in dealing with such a sensitive laboratory procedure. About 4.5 per cent of all patients had a "false high" blood iodine level because of recent roentgen examinations in which radiopaque mediums containing iodine were employed, or in which there was iodine medication just prior to the determination of the blood iodine level. 3. The radioiodine uptake test appears to be an accurate diagnostic test for thyrotoxicosis. It is most accurate if a careful history is taken prior to the test regarding the recent ingestion of antithyroid drugs. This test may be considered about 95 per cent accurate. The only problem is in the borderline group of patients, amounting to 5 per cent of the total number. We have considered that a therapeutic trial of treatment for this borderline group of patients having uptakes between 30 to 35 per cent is indicated for the purpose of differential diagnosis. A favorable clinical response to treatment would put these patients in the toxic group. The only definite "false low" uptake was in 1 patient who had undergone previous surgical procedures. There were 15 other patients who had undergone previous surgical procedures with recurrent toxicity who had definitely high uptake levels.

GENERAL CONSIDERATIONS

The 100 microcurie tracer dose of I^{131} represents a small amount of radiation delivered to the body. That portion not taken up by the thyroid is almost completely excreted by the kidneys. No damage to these organs of elimination has yet been reported or noted by us in our patients. In the average person less than 30 per cent of the 100 microcurie tracer dose is retained by the thyroid. Another 10 to 15 per cent is unaccounted for when the urinary excretion is carefully measured. This is distributed widely through the body.

Indications and Contraindications of I^{131} Uptake Study.—The radioiodine uptake study is indicated for any patient with suspected thyroid disease. Pregnancy in its second and third trimester is a contraindication, since during this time the fetal thyroid is developing and radioactive iodine uptake occurs.[18] Other contraindications are presented by vomiting patients, patients with rapid bowel action and patients taking antithyroid drugs, iodides or thiocyanates. The presence of these conditions, if unrecognized, may lead to definite errors in the study, such as "false low" uptakes.

Ease of Test for Patient.—The uptake study is a convenient procedure. There are no special orders or precautions necessary for the patient. It is a twenty-four to forty-eight hour test, during which time the patient carries on a normal regimen. No special preparation, diet or rest is required. The uptake study is easily accomplished in children, though here the tracer dose should be smaller. About 20 to 40 microcuries of I^{131} is sufficient for children.

Other Uses of Radioactive Iodine in Diagnosis.—The exact diagnosis of intrathoracic goiter is occasionally difficult. With proper shielding of the Geiger-Mueller tube the individual lobes of the thyroid and parts thereof, as well as aberrant and intrathoracic extensions of the thyroid, may be checked for uptake.[19] A satisfactory type of shield is a 20 cm. hollow cylinder of steel and lead, 7 cm. in outside diameter with 14 mm. walls. This permits localization of the counting tube over a solitary nodule in one of the thyroid lobes. It further permits localized counting over a small portion of the thoracic inlet or superior mediastinum for measurement of uptake in an intrathoracic goiter, the percentage uptake of which can easily be checked with that over the thyroid itself. Similar use has been made of radioactive iodine uptake in the diagnosis of a lingual thyroid.[20]

Consistent Accuracy of the Test.—In numerous circumstances it has been necessary to repeat an uptake test in one to two weeks, or longer, for substantiation. It has been noted that the results of the original and the repeat study are surprisingly consistent. In only 3 instances have wide variations occurred. These, however, even with the variation, still remained below the toxic range. On each occasion, the initial radioactive iodine uptake by the thyroid was zero, but one or two weeks later the uptakes demonstrated normal thyroid activity, being 20 to 30 per cent. The possibility of thyroiditis in these cases must be considered. Vomiting and diarrhea may prevent the tracer dose from reaching the thyroid gland. Iodine medication prior to the test may prevent iodine uptake.

In general, our study indicated that, under similar conditions, measurement of the radioiodine uptake will be more indicative of the actual state of thyroid metabolism than will measurement of either the protein-bound blood iodine level or the basal metabolic rate. It is particularly useful in patients who are unsuited for or uncooperative in the more rigorous procedure necessary to obtain a basal metabolic rate. Patients with cardiovascular disease in varying degrees of failure are particularly unsuited for the basal metabolism test. Similarly, asthmatic, and psychotic patients and patients with leukemia and Hodgkin's disease frequently have an elevated basal metabolic rate but a normal radioiodine uptake. The level of the protein-bound blood iodine has been reported elevated in acute thyroiditis, in pregnancy, and occasionally in hypertension; it is also elevated artificially by injection or ingestion of iodine preparations. Decreased values have been noted in Hodgkin's disease, in involutional depression and in nephrosis in which there are lowered plasma proteins.[3] We have had no experience with the uptake study in pregnancy or nephrosis, but in the other conditions mentioned the uptake has been normal.

Comparison of Basal Metabolism Test, Blood-Iodine Level and Radioiodine Tracer Study.—It would appear that there are many more patients in the hyperthyroid range, according to the basal metabolism test, than either the blood iodine or radioiodine uptake tests would indicate. Final results showed one third of these basal metabolism tests to be in error. The radioiodine uptake charts show more patients in the thyrotoxic range than is evident in the charts of the blood iodine test. This proved 95 per cent accurate. Many of the blood iodine levels were just above the upper limit of normal (7 micrograms per hundred cubic centimeters.

CONCLUSIONS

1. The study of the radioiodine uptake in man is a safe and accurate diagnostic test for hyperthyroidism.

2. The basal metabolism test and the protein-bound blood iodine determination are not routinely necessary unless the results of the radioiodine uptake study are borderline (30 per cent to 35 per cent) or out of proportion to the clinical picture.

3. The blood iodine level is more reliable than the basal metabolic rate but less reliable than the radioactive iodine uptake study. According to this study, the radioiodine tracer test is 95 per cent accurate; the blood iodine test is 80 per cent accurate, and the basal metabolism test is 67 per cent accurate.

4. No "false high" radioiodine uptakes were found in the patients without other evidence of thyrotoxicosis.

5. "False normal" radioiodine uptakes may occur in patients who have recently ingested propylthiouracil, strong iodine solution or thyroid preparations.

6. In acute thyroiditis the uptake will be low, in spite of an elevation in the organic blood iodine; in hypothyroid children with iodine-hungry hyperplastic glands, the uptake may be elevated.

7. As the radioiodine uptake study becomes available to more and more hospitals, its use should be encouraged. It is technically simple and easy to perform as far as the patient is concerned, even infants and children.

8. We advise radioiodine uptake studies, when available, for all patients with clinically suspected hyperthyroidism, regardless of the type of treatment to be used (surgical intervention or thiouracil or radioiodine therapy).

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AUREOMYCIN IN OBSTETRICS: THERAPY AND PROPHYLAXIS

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The object of this investigation was to evaluate the use of aureomycin in obstetric patients. Since the advent of the sulfonamide drugs and penicillin investigators have continued to search for new antibiotics which would be effective and less toxic. One of the products of this search, aureomycin, was discovered by Duggar in 1948.[1] Extensive bacteriologic and clinical studies have established the effectiveness of this agent in a wide variety of infections. Its mode of action, as determined in vitro, is predominately bacteriostatic, but it also possesses bactericidal properties at high concentration. Because of the promising results reported with aureomycin, including its use in obstetric complications,[2] a study of this drug and its effect on the bacteriologic flora and infections during pregnancy and the puerperium was believed warranted.

MATERIAL AND METHODS

Aureomycin was prescribed according to various dosage schedules as noted under the individual descriptions. The in vitro studies described in this investigation were performed by one of us. In addition to the routine orders for the care of the patient, 30 cc. of a colloidal aluminum hydroxide preparation (amphojel[9]) as required for gastric symptoms was prescribed. The omission of antipyretic drugs and other antibiotics was requested. The technic employed for uterine culture was that previously described by Guilbeau and Schaub.[3] Uterine cultures were immediately inoculated into fresh Brewer's thioglycollate medium[4] and sent directly to the bacteriology laboratory. The methods for the isolation and identification of the various bacteria were those outlined in Schaub and Foley's "Diagnostic Bacteriology."[5] No attempt was made to isolate organisms of the pleuropneumonia group.[6] Aureomycin sensitivity of the organisms isolated was determined by an adaptation of the paper disk technic described by Bondi and others.[7] The modification consisted of saturating the disk with a solution of aureomycin, using 1,000 micrograms per cubic centimeter. A clear zone of 10 mm. or more surrounding the disk was interpreted as evidence that the bacteria were sensitive to the drug. The clinical response observed largely supported these conclusions, though the technic is admittedly only approximate. Aureomycin levels in the serum of both infant and mother and in mothers' milk were determined. Because of the drug's instability in these mediums at room temperature, a wide margin of error exists. The absence of a detectable level with these methods of assay does not imply that the drug is not present. A measurable serum level really represents a somewhat higher concentration of the antibiotic. The method employed for determining the aureomycin levels was a four hour turbidimetric assay employing a strain of Bacillus cereus obtained from Dr. A. C. Dornbush. Milk was defatted by freezing, and sulfuric acid was added to precipitate the protein. Levels of 0.1 microgram per cubic centimeter could be detected.[8]

ANALYSIS OF RESULTS

A. *Comparison Between Control and Treated Series.*—In a control series 24 patients were observed in whom bacteriologic cultures were obtained from the postpartum uterus, forty-eight to seventy-two hours following delivery. These patients all had uncomplicated, normal deliveries and were afebrile during the puerperium. Seventy-five per cent of these uterine cultures contained micro-organisms. Anaerobic streptococci were present in two thirds of the cultures, and the remaining organisms were microaerophilic streptococci, staphylococci, coliaerogenes, Proteus vulgaris, bacteroides and Clostridium welchii (table 1). These observations conform with other reported series.[9]

The bacteriologic observations on the 109 postpartum uteri of patients who had received aureomycin showed that only 13 (11.9 per cent) contained organisms (table 2). Eight of these strains of micro-organisms were sensitive to aureomycin when tested in vitro. The patient from whom an aerobic streptococcus was cultured was normal post partum and had received prophylaxis with aureomycin, 2.0 Gm. daily for three days. Two of the 3 patients from whose uteri coliaerogenes organisms[10] were obtained had received small amounts of aureomycin for only a short period. The coliaerogenes organism obtained from the third patient was apparently resistant to the drug by the in vitro test employed. A hemolytic Staphylococcus albus was cultured from uteri of 2 patients. Both these patients had been delivered of twins. One patient had endometritis and the other had had a version and extraction of the second twin. The latter patient had received the small 2.0 Gm. daily dose of aureomycin. From each of 5 patients one organism was obtained: an aerobic Gaffkya, Cl. welchii, miroaerophilic yeast, an aerobic yellow pigmented diphtheroid and P. vulgaris. Uterine culture from 2 patients showed Bacillus subtilis following administration of aureomycin (table 2). Both the proportion of patients whose uteri were positive on

The aureomycin employed in this study was supplied by the Lederle Laboratories Division, American Cyanamid Company.

This article has been abbreviated in THE JOURNAL by the omission of part of the tables. The complete article will appear in the authors' reprints.

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10. No uniform attempt to distinguish between strains of Escherichia coli and Aerobacter aerogenes was made, and the term coliaerogenes group is used in this report.

cultural examination and the type of organism isolated from cultures of uteri from the group receiving aureomycin were in decided contrast to the bacteriologic observations on the postpartum uteri when chemotherapy was employed. After the administration of aureomycin, various micro-organisms appeared that are not commonly found in the bacterial flora of the normal postpartum uterus. The ability of these strains to initiate puerperal infection is not known.

The sensitivity to aureomycin of the organisms isolated from 153 postpartum uterine cultures obtained during this study showed that a microaerophilic yeast, P. vulgaris, one strain of coliaerogenes and a Cl. welchii were resistant to the antibiotic. Aerobic, anaerobic and microaerophilic streptococci, anaerobic and aerobic diphtheroids, staphylococci, two strains of coliaerogenes and B. subtilis were found to be susceptible to aureomycin (table 3). Although these sensitivity tests are only approximate because of the instability of aureomycin under the conditions necessary for study, clinical observations appear to correlate well with these tests. The 1 patient in whom, after adequate therapy, the uterus was found to harbor a coliaerogenes organism, which was also resistant to aureomycin in vitro, has been mentioned. The majority of coliaerogenes organisms isolated from both postpartum uteri and infected urine specimens during this study were sensitive to aureomycin both in vitro and clinically.

TABLE 4.—*Summary of Bacteriologic Studies from the Postpartum Uterus in Patients Receiving Aureomycin and in Controls*

Bacteriologic Results	Normal Patients Without Any Chemotherapy *		Aureomycin-Treated Patients	
	No.	Percentage	No.	Percentage
No. of cases	24	100.0	109	100.0
Sterile cultures aerobically and anaerobically	6	25.0	96	88.1
Aerobic and/or anaerobic streptococci of some type	16	66.6	1	0.9

* If 32 additional patients without chemotherapy should be included in this group the total would be 56, of whom 14.3 per cent had cultures that were sterile aerobically and anaerobically and 75.0 per cent had cultures that showed some type of streptococcus.[9b]

A summary of the differences between the bacterial flora of the normal postpartum uterus and that observed after antibiotic therapy with aureomycin is presented in table 4. The predominant organisms found normally were the streptococci, of which the anaerobic varieties were most common. In the control series of 24 patients, this micro-organism was present in 66.6 per cent of the cultures. If data on 32 additional normal women previously studied [9b] are added to this present series of 24, data on a total of 56 patients are available for analysis. Of these, 75.0 per cent showed streptococci of the aerobic or anaerobic type, but only 14.3 per cent of the cultures from these uteri were sterile after aerobic and anaerobic incubation. This is in decided contrast to the results in the 109 women treated with aureomycin, in whom only 1 culture, or 0.9 per cent of the series, was positive for a streptococcic oragnism, while 88.1 per cent of the cultures were sterile.

B. *Clinical and Microbiologic Results Following Treatment of Bacterial Infections.*—The decided effect which aureomycin exerts on the bacterial flora of both the infected and normal puerperal uteri is illustrated in table 5. The initial cultures were all taken thirty-six to seventy-two hours post partum before the initiation of chemotherapy. They showed a variety of bacteria, again predominately anaerobic streptococci. Final cultures were obtained after treatment was completed. The diagnosis of the condition of each patient is presented in the right hand column. The amount of drug administered to each patient is shown as the total that the patient received before clinical cure was effected in those with infected uteri or as the total amount employed as a prophylactic for those with normal uteri. After therapy, the majority of the uteri were found to be sterile when cultured aerobically or anaerobically. Those cultures which contained bacteria showed strains of organisms not present before onset of treatment. Although special technics were not employed to search for pleuropneumonia-like organisms, their absence from the blood agar plates incubated aerobically and anaerobically was in decided contrast to previous observations when penicillin therapy was similarly employed. Twenty per cent of the uterine cultures obtained from patients receiving penicillin showed the presence of pleuropneumonia-like organisms, and in 14 per cent these were noted in pure culture.[6] These results attest to the effectiveness of aureomycin in eradicating a multitude of bacterial organisms from the puerperal uterus.

TABLE 5.—*Effect of Aureomycin on the Bacterial Flora of Both Infected and Normal Postpartum Uteri: 20 Cases*

Organisms Isolated from Uterine Cultures Taken 36 to 72 Hr. Post Partum Before Onset of Therapy	Total Gm. of Aureomycin	Uterine Culture After Therapy 4 to 8 Days Post Partum	Case Diagnosis
Staph. albus and B. subtilis	14.0	Sterile	Normal
Anaerobic alpha streptococci	6.0	Sterile	Normal
Anaerobic gamma streptococci and aerobic alpha streptococci	18.0	Sterile	Infected abortion
Anaerobic gamma streptococci and aerobic streptococci, type unknown	6.0	Sterile	Normal
Diphtheroids and anaerobic gamma streptococci	8.0	Sterile	Endometritis
Coliaerogenes; B. subtilis; aerobic alpha enterococci and streptococci	7.5	Sterile	Normal
Diphtheroids and anaerobic streptococci	17.5	Sterile	Acute pelvic inflammatory disease
Aerobic alpha streptococci and Staph. albus	3.5	Sterile	Normal
Anaerobic streptococci, type unknown	3.5	Sterile	Normal
Anaerobic gamma streptococci	18.0	Sterile	Endometritis
Anaerobic alpha streptococci	7.5	Sterile	Normal
Diphtheroids and anaerobic alpha streptococci	7.5	Sterile	Normal
Anaerobic gamma streptococci	7.5	Sterile	Endometritis
Coliaerogenes, Staph. albus, Sh. alkalescens, anaerobic alpha streptococci, beta enterococci and streptococci	12.0	Sterile	Peritonitis
Hemolytic Staph. albus	8.0	Sterile	Infected abortion
Aerobic and anaerobic alpha and beta streptococci and coliaerogenes	16.7	Sterile	Peritonitis
Anaerobic gamma streptococci	5.5	Cl. welchii	Normal
Coliaerogenes, aerobic and anaerobic gamma streptococci	5.0	B. subtilis	Endometritis
Coliaerogenes and Staph. albus	16.0	Staph. albus	Infected abortion
Anaerobic beta streptococci	6.0	P. vulgaris and Staph. albus	Endometritis

A number of acute puerperal infections were treated with aureomycin during this study. The infection was considered of such severity that the response to drug therapy could be evaluated. The observations on these patients are summarized in table 6. In this table are included the diagnosis, organisms isolated, maximum temperature attained during the infection, the interval

after beginning therapy before the patient became and remained afebrile, the dosage of aureomycin during the height of the disease and the total amount of antibiotic employed.

Since it is impossible to convey the full import of our experience in this table, a further analysis of some aspects of these cases is reported. There were 4 patients with acute peritonitis occurring post partum; in 3 of these the infections were considered a direct result of labor.

Case 1.—A Negro primigravida aged 27 was admitted three weeks post-term for induction of labor. Labor was initiated by artificial rupture of the membranes. After twenty-four hours of ineffectual labor, the fetal heart beat could not be heard. The oral temperature of the patient rose to 100 F., and she was given penicillin, 200,000 units parenterally every eight hours, and dihydrostreptomycin, 0.5 Gm. intramuscularly every four hours. Despite this antibiotic therapy, her temperature rose daily to 101 F. during the next forty-eight hours. Delivery was finally accomplished after a labor of 53 hours and 31 minutes and a prolonged second stage of 2 hours and 52 minutes. The infant was stillborn, weighing 4,080 Gm. Uterine culture at delivery revealed both aerobic and anaerobic alpha-hemolytic and beta-hemolytic streptococci in addition to a gram-negative bacillus which could not be identified. Her temperature rose to 102.4 F. six hours post partum, at which time examination of the abdomen showed involuntary muscle spasm in both lower quadrants and generalized rebound tenderness. Both penicillin and streptomycin were discontinued. Aureomycin therapy was begun with a dosage schedule of 300 mg. intravenously every six hours for four doses and 0.75 Gm. orally every four hours. Twenty-four hours post partum the temperature returned to normal and remained so. However, the abdominal signs did not completely disappear until seventy-two hours following delivery. A uterine culture twenty-eight hours later was sterile, and pelvic examination revealed no abnormalities. A total of 16.7 Gm. of aureomycin was administered to this patient.

Case 2.—A Negro primigravida aged 16 was admitted to the hospital at term in early labor. Her labor was complicated by severe preeclampsia. The pelvis was contracted at the inlet and midplane. She was given a trial of labor without success. She was finally delivered by low cervical cesarean section after thirty-six hours of labor. Administration of penicillin, 200,000 units every eight hours, was begun thirty-four hours before delivery, and dihydrostreptomycin therapy, 0.5 Gm. intramuscularly every four hours, was instituted seven hours before delivery. Her temperature during labor was normal. Nine hours post partum it rose to 101.6 F., and twenty-four hours later her oral temperature was 102.6 F. Both antibiotics were discontinued, since the fever had developed and persisted during their administration. The abdomen was distended, with involuntary muscle spasm in both lower quadrants and rebound tenderness throughout the abdomen. Uterine culture at cesarean section was sterile, but a culture at the height of her fever showed diphtheroids. She was given aureomycin, 0.75 Gm. orally every four hours and 200 mg. intravenously every four hours, for seven doses. Her temperature persisted at 103 F. for twelve hours and then fell progressively, so that it was and remained normal forty-eight hours after the initiation of aureomycin therapy. The abdominal signs did not disappear until twenty-four hours later. A total of 21.4 Gm. of aureomycin was administered.

Case 3.—A Negro multigravida aged 40, with twelve living children, was delivered at term, spontaneously, after a four hour labor. The labor was complicated by a measured 600 cc. postpartum hemorrhage. On the third day after delivery the temperature rose to 103.4 F. Examination showed distention with involuntary muscle spasm and rebound tenderness over the lower part of the abdomen. Pelvic examination showed exquisite tenderness throughout the pelvis. Uterine culture grew anaerobic alpha-hemolytic streptococci, beta-hemolytic enterococci, coliaerogenes bacilli, Staph. albus and Shigella alkalescens. A diagnosis of pelvic peritonitis and parametritis was made. Aureomycin, 0.75 Gm. orally every four hours, was given, and the patient became afebrile twenty-four hours later. Complete disappearance of the abdominal signs occurred forty-eight hours after therapy was instituted. A total of 12.0 Gm. of the drug was administered.

Case 4.—A white multigravida aged 35 with three living children was admitted at term for induction of labor, which was accomplished by rupture of the membranes. The infant weighed 3,820 Gm., had a persistent occiput posterior presentation and caused a third degree perineal laceration at birth. The postpartum course was uneventful until the night of the

Table 6.—*Variety of Infections Treated with Aureomycin: 24 Cases*

Type of Infection	No. of Cases	Causative Organism	Highest Temperature (F.) Pre-treatment	Duration of Therapy (Hr.) Before Normal Temperature (Below 100.4 F.)	Daily Dosage During Height of Infection (Gm.)	Total Dosage (Gm.)
Peritonitis following delivery	3	Diphtheroids *	103.0	48	4.5 orally + 1.2 I.V.	21.4
		Aerobic and anaerobic alpha and beta strep.*	102.4	24	4.5 orally + 1.2 I.V.	16.7
		Anaerobic alpha strep., beta enterococci, coliaerogenes, Staph. albus, Sh. alkalescens *	103.4	24	4.5 orally	12.0
Intrapartum infections occurring during labor †	4	Unknown †	102.4	12	3.0 orally	7.0
		Unknown †	103.0	18	3.0 orally + 0.6 I.V.	11.6
		Unknown †	102.0	12	3.0 orally	7.0
		Unknown †	101.0	12	2.0 orally	5.0
Endometritis	7	Anaerobic gamma strep.	103.0	24	4.5 orally	18.0
		Hemolytic Staph. albus	101.4	24	3.0 orally	12.0
		Unknown	102.0	48	3.0 orally	10.0
		Anaerobic gamma strep.	101.2	24	2.0 orally	5.5
		Unknown	101.6	48	3.0 orally	9.5
		Aerobic and anaerobic gamma strep. and coliaerogenes	101.6	12	2.0 orally	5.0
		Anaerobic beta strep.	103.4	24	2.0 orally	6.0
Parametritis with or without endometritis and abscess formation	5	Unknown	102.0	12	3.0 orally	7.0
		Unknown	102.2	48	3.0 orally	12.0
		Diphtheroids, anaerobic gamma strep.	102.0	24	3.0 orally	8.0
		Diphtheroids, anaerobic strep.	102.0	60	3.0 orally	17.5
		Anaerobic gamma strep.	102.2	12	3.0 orally	7.5
Infected abortions	4	Coliaerogenes, Staph. albus	103.4	24	4.5 orally	16.0
		Aerobic alpha strep., anaerobic gamma strep.	101.6	12	3.0 orally	18.5
		Unknown	101.6	12	2.0 orally	4.0
		Hemolytic Staph. albus	102.0	24	3.0 orally	8.0
Acute peritonitis caused by appendicitis occurring in the early puerperium	1	Peritoneal culture at operation showed coliaerogenes and Staph. albus	102.0	48	6.0 orally + 1.2 I.V.	47.4

* Uterine cultures before onset of therapy.
† Ascending uterine infections. Organisms unknown because of impracticability of obtaining uterine cultures during labor.

fifth day, when the woman experienced vague epigastric distress and vomited on four occasions. The following morning she complained of vague pain in her right side. Physical examination showed questionable muscle spasm, some pain to deep palpation, and fulness palpable in the right lower abdominal quadrant. The leukocyte count was 9,000, and the temperature was normal. A surgical consultant believed that the diagnosis of appendicitis was warranted. At operation, the appendix was acutely inflamed and possibly ruptured. After appendectomy an excessive amount of purulent exudate continued to drain from the incision. Therefore an exploratory laparotomy was performed through a midline incision to determine the origin and nature of this exudate. The abdominal contents were palpated or directly visualized, and the entire intestinal tract was inspected. The only abnormality demonstrable was acute inflammation of the entire intestinal tract accompanied with large amounts of purulent exudate. A diagnosis of acute peritonitis secondary to the appendicitis was made, drains were inserted, and the abdomen was closed. A tube was passed via the nose through the stomach into the small intestine for decompression of the distended bowel. Culture of the peritoneal exudate showed coliaerogenes bacilli and Staph. albus. Immediately following operation the patient received a single intramuscular dose of 200,000 uits of penicillin and 0.5 Gm. of dihydrostreptomycin. Afterward she received aureomycin, 300 mg., intravenously every six hours. On the second postoperative day the temperature was 102 F., but peristaltic sounds were audible. Therefore aureomycin, 1.0 Gm. every 4 hours, was given orally in addition to the intravenous drug. Her temperature became normal forty-eight hours after the start of aureomycin therapy. At this time parenteral administration of the drug was discontinued and the oral dose was decreased. Four days after operation all abdominal signs had disappeared. A total dosage of 47.4 Gm. of the antibiotic was administered.

There were 4 cases of acute intrapartum infections. The etiologic organisms are unknown, since it is obviously impractical to obtain uterine cultures during labor. Two cases in this group are of special interest.

CASE 5.—A Negro primigravida aged 22 was admitted at term. Her pelvis was generally contracted at the inlet and outlet. The membranes ruptured spontaneously seven hours before the onset of labor. After six hours of labor her temperature was 103 F. The patient was not dehydrated, and physical examination, blood culture and urinalysis all revealed essentially normal conditions. A diagnosis of ascending uterine infection was made, and she was treated with aureomycin, 200 mg. intravenously every six hours for three doses and 0.5 Gm. orally every four hours. Her temperature ten hours later was 100.4 F.; it was completely normal at eighteen hours, despite a prolonged labor of twenty-four hours and eleven minutes, a prolonged second stage of four hours and thirty-one minutes, and a persistent occiput posterior presentation which was rotated manually. A normal infant was delivered. Uterine culture forty-eight hours post partum was sterile.

CASE 6.—A Negro secundigravida aged 23, with one living child, whose membranes had spontaneously ruptured thirty days before, was admitted early in labor. Her temperature was 102 F. Results of physical examination, blood culture and urinalysis were all within normal limits. A diagnosis of ascending intrauterine infection was made. Aureomycin, 0.5 Gm. orally every four hours, was given, and the temperature dropped to normal in twelve hours. A premature infant weighing 1,490 Gm. was delivered and survived without complications. Uterine culture fifty-six hours post partum showed only B. subtilis.

Seven patients with acute endometritis were treated during the puerperium, and all responded satisfactorily to rather small amounts of the antibiotic, i. e., 2 to 3 Gm. daily. Five women with acute parametritis were treated. One of these did not become afebrile for sixty hours. That antibiotics act mainly about the confines of a large abscess and prevent further spread is illustrated by this case, which will be described briefly. The other 4 patients responded promptly and satisfactorily.

CASE 7.—*Parametritis with Large Abscess.*—A 27 year old Negro primigravida, at term, was admitted early in labor. The pregnancy was complicated by two uterine myomas, each of which was estimated as approximately 8 cm. in diameter. A further complication was a contracted pelvis of the rachitic type at the inlet. Uterine inertia developed, and the patient was delivered by a low cervical cesarean section after twenty hours of poor labor. A normal 3,675 Gm. infant was delivered. After delivery the patient was given 2.0 Gm. of sulfadiazine daily for what was thought to be a mild urinary tract infection, i. e., 10 to 15 leukocytes per high power field. The culture of the urine was subsequently shown to be sterile. Her temperature rose to 100.4 F. daily, and the sulfadiazine dose was increased to 4.0 Gm. daily on the third postpartum day. The fever continued, and the temperature rose to 102 F. on the fifth day following delivery. Sulfadiazine therapy was discontinued. Physical examination revealed essentially normal conditions except that both adnexa were markedly indurated and extremely tender. Bilateral adnexal abscesses, 5 to 6 cm. in diameter, were readily palpable. Aureomycin, 3.0 Gm. daily, was given orally, and her temperature returned to normal sixty hours later. Uterine culture before institution of aureomycin therapy showed diphtheroids and anaerobic streptococci. A uterine culture seventy-two hours later was sterile. The adnexal abscesses resolved slowly over a period of several weeks with the aid of daily hot douches. A total of 17.5 Gm. of aureomycin was administered.

In 4 cases of infected abortions response to therapy was satisfactory. These cases are summarized in table 6. Two of the abortions were completed spontaneously and showed sterile uterine cultures forty-eight and eighty-two hours following institution of therapy. The other two abortions were incomplete, and dilatation and curettage was required. This was performed after the temperature of the patient had returned to normal for twenty-four hours. A uterine culture was retaken twenty-four hours after the operative procedure and was sterile in 1 instance. However, Staph. albus was isolated from the patient whose temperature had been 103.4 F. on admission.

A word of caution must be noted about the duration of therapy with aureomycin in cases of infection. This antibiotic is thought to be mainly bacteriostatic, so therapy must be continued for varying periods after the temperature has returned to normal to prevent recurrences.

Eleven patients with urinary tract infections during pregnancy were treated (table 7). For the most part, these patients may be divided into two groups, i. e., those with acute urinary tract infection and those with chronic, recurrent infections which had become refractory to the sulfonamide drugs. The response to aureomycin therapy in both groups was excellent, although recurrences of chronic infections was observed. Several representative cases from each group are reported.

CASE 8.—*Acute Pyelonephritis.*—A white secundigravida aged 19 with one living child was admitted to the hospital. Her pregnancy was complicated with a contracted pelvis at the inlet and rheumatic heart disease, class 1. Her labor was further complicated by acute pyelonephritis and a temperture of 102.8 F. Pronounced costovertebral tenderness was present on the right side. Urinalysis showed clumps of leukocytes, and coliaerogenes bacilli were obtained from the urine culture. She was treated with aureomycin, 0.5 Gm. every four hours, and her temperature returned to and remained normal seventy-two hours post partum. The urine on the fifth day of treatment was normal microscopically and sterile by culture. A total of 19.0 Gm. of aureomycin was administered.

CASE 9.—*Acute Urinary Tract Infection.*—A Negro multigravida aged 36, with four living children, was admitted at term in early labor with a history of chills and fever for the preceding twenty-four hours. Physical examination revealed essentially normal conditions. The urine contained innumerable leukocytes, and coliaerogenes bacilli were obtained by culture. The admission temperature was 103.8 F. A blood culture was sterile. Despite therapy with sulfadiazine, 4.0 Gm. as an initial dose followed by 1.0 Gm. every four hours, the temperature rose to 104.4 F., and the patient's general status appeared to be worse. Therefore sulfadiazine therapy was stopped twenty-four hours following delivery and oral aureomycin therapy, 0.75 Gm. every four hours, substituted. The following day the temperature was 103.8 F., but it returned to normal twenty-four hours thereafter. The dosage of antibiotic was then reduced to 2.0 Gm. daily for several days. A second urine culture was sterile. A total of 18.0 Gm. of drug had been employed.

CASE 10.—*Chronic Recurrent Urinary Tract Infections During Pregnancy.*—A Negro primigravida aged 19 experienced an acute infection of the urinary tract associated with coliaerogenes bacilli and aerobic gamma streptococci during the fifth month of her pregnancy. She was treated with 2.0 Gm. of sulfadiazine daily for five days. The pyuria ceased for only one week. A second culture showed the organisms still present. She was then given 2.0 Gm. of sulfathiazole daily for five days, with only temporary remission of symptoms. She was then admitted to the obstetric service for further evaluation of her infection and for treatment. Dihydrostreptomycin, 2.0 Gm. daily for five days, was administered. Results of the phenolsulfonphthalein excretion and concentration tests and intravenous pyelograms were all within normal limits. Pyuria again disappeared, but bacilluria due to coliaerogenes organisms and gamma streptococci persisted. The organisms were found to be sensitive to aureomycin but resistant to streptomycin. The patient, who had been discharged, was treated unsuccessfully with phthalylsulfathiazole for five days before readmission. On readmission, she received aureomycin 2.0 Gm. daily for four days. Her pyuria ceased, and urine cultures became and remained sterile.

CASE 11.—*Chronic Recurrent Urinary Tract Infection with Impaired Renal Function.*—A Negro multigravida aged 24, with three living children, was first seen on the obstetric service when twelve weeks pregnant. At that time, she had pyuria associated with coliaerogenes bacilli. A review of her past history disclosed that her urologic difficulties had begun in 1944, when she had had an acute hemorrhagic cystitis cured with sulfadiazine therapy. After this episode, she had had several acute recurrences of urinary tract infections at intervals of four to six months. Each episode apparently responded promptly to sulfonamide therapy. In September 1947 an acute pyelonephritis developed, with temperature of 104 F. Urine culture was positive for organisms of the coliaerogenes group. The infection appeared to respond to therapeutic doses of penicillin and sulfadiazine. Urologic study on the gynecologic service at that time disclosed decreased renal function with only 28 per cent phenolsulfonphthalein excretionary function for the left kidney and less than 5 per cent from the right kidney. Intravenous and retrograde pyelograms showed no deformity or stones in the urinary tract. Cystoscopy with retrograde pyelograms in 1948 was again normal, except for coliaerogenes organisms which were cultured from the urine obtained from the right ureter. On admission to the obstetric service a third urologic investigation confirmed the previous observations, i. e., 30 per cent function on the left and less than 5 per cent function on the right. She was given sulfadiazine and phthalylsulfathiazole for a week, but bacilluria persisted. Sensitivity studies showed that the organisms were only slightly sensitive to streptomycin and chloramphenicol but highly sensitive to aureomycin. The patient insisted on completing her pregnancy, and it was believed that with the aid of aureomycin therapy this might be possible. Therefore aureomycin, 2.0 Gm. daily for six days, was prescribed. The pyuria and bacilluria disappeared, but two weeks later the patient returned with a urinary tract infection associated with P. vulgaris. This was cured by 10.0 Gm. of chloramphenicol given over a five day period. Three weeks later, she returned with pyuria due to coliaerogenes bacilli. In view of the fact that the patient already had three living children, recurrent urinary infection despite use of the newer antibiotics and decreased renal function bilaterally, a therapeutic abortion with tubal sterilization was performed. A seven day course of aureomycin therapy sterilized her urine, and she became asymptomatic. Four weeks after discharge, however, the patient returned with a recurrent right pyelonephritis. It appears that the diseased kidney may require surgical removal for permanent cure.

CASE 12.—Treatment of a patient with acute pyelonephritis is of interest because it illustrates an avoidable error. Her infection responded promptly to aureomycin therapy within twenty-four hours. Two and a half days later she was discharged from the hospital, with urine apparently normal on microscopic examination. The laboratory had tentatively reported the urine sterile after thirty-six hours of incubation. Unfortunately, delayed growth of coliaerogenes organisms occurred several days later. The antibiotic therapy had apparently been discontinued too soon. This patient returned ten days later with mild pyuria due to coliaerogenes bacilli, which was cured by a second course of therapy.

C. *Potentialities of Prophylactic Therapy.*—The use of antibiotics for prophylactic therapy has become more frequent in recent years, especially in the field of obstetrics. This trend has developed from the knowledge that, even after normal deliveries, the majority of postpartum uteri contain micro-organisms. The predominant organism is the anaerobic streptococcus, which is usually accompanied with a variety of less frequently occurring bacilli [9] (table 1). In addition to the common gram-positive organisms, many of the gram-negative organisms found in the lower part of the intestinal tract have also been recovered from the postpartum uterus. Both the gram-positive and gram-negative bacteria are potentially pathogenic. Such infection may result in irreparable damage which can jeopardize future childbearing.

TABLE 9.—*Febrile Response of 55 Postpartum Patients Who Had Received Prophylactic Aureomycin During Labor and the Early Puerperium* *

Highest Oral Temperature (F.)	Probable Etiology of Fever
101 on one day	Acute breast engorgement
100.4 on one day	Operative reaction from tubal sterilization (case 11)
100.4 on one day	Blood transfusion reaction
100.6 and 100.4 on two days	Acute breast engorgement
101.8 and 101 on two days	Large degenerating myomas post partum; infected (?) (case 7)
	Total showing fever, 9.1%
Total morbidity by usual criteria,† 3.6%	

* Uterine cultures in this group were all sterile.
† Temperature of 100.4 F. on any two days following delivery.

Aureomycin was considered an ideal antibiotic for prophylaxis because of its ease of administration, minimal toxic reactions and wide range of bacterial activity. Fifty-five patients were given prophylactic daily doses of 2.0 Gm. of aureomycin beginning early in labor and continued for two to three days post partum (table 8). Uterine cultures obtained forty-eight to ninety-six hours post partum were sterile in 50 cases, and from the remaining 5 cultures an aerobic alpha streptococcus, Esch. coli, microaerophilic yeast, hemolytic Staph. albus and an anaerobic Gaffkya tetragena were obtained. Only 9.1 per cent of the uterine cultures revealed bacteria, and three of the five organisms thus isolated were

sensitive to aureomycin by in vitro tests. This is in decided contrast to the 75 per cent of positive uterine cultures from normal, untreated patients (table 4). In addition, the type and variety of bacteria differ. Aureomycin, in small daily dosages of 2.0 Gm., is capable of sterilizing the postpartum uterus in a majority of cases.

Table 9 is of interest as a clinical follow-up of the 55 patients who were treated prophylactically with aureomycin. Five patients had a febrile reaction during the puerperium. A febrile elevation includes any oral temperature above 100.4 F. on any day following delivery. The 5 patients constitute 9.1 per cent of the series. The uterine cultures in these patients were all sterile. The total morbidity, according to the usual criteria of 100.4 F. on any two days following delivery, was 3.6 per cent. Although the series is small, it serves to illustrate the reduction in maternal infections which can be achieved.

Twenty patients were given aureomycin (2.0 Gm. daily) beginning early in the puerperium. These patients all had had normal deliveries and received no antibiotic until forty-eight to seventy-two hours thereafter. The object of this procedure was to note the effect of prophylaxis on the bacterial flora of the postpartum uterus after an adequate period had elapsed after delivery for bacteria to gain access to the uterus, i. e., with the knowledge that the majority of uteri post partum contain bacteria within forty-eight to seventy-two hours. From only 1 uterine culture was an organism obtained (table 10), and this coliaerogenes species was sensitive to aureomycin in vitro. Thus, prophylaxis with 2.0 Gm. of aureomycin daily may be considered adequate to sterilize the normal postpartum uterus. The results noted in this group support the observations previously presented, when aureomycin was given early in labor and continued for several days post partum.

D. *Drug Levels Observed and Toxic Manifestations.*—The importance of placental transfer of an antibiotic with so broad an antibacterial range is apparent. In cases of intrauterine infections during labor and intrauterine fetal pneumonia the clinician may only infer which may be the etiologic organism from among the many species usually present. Therefore, an antibiotic which will reach the infant via the maternal blood stream promptly in high therapeutic concentration, and which possesses an inclusive antibacterial spectrum, is desirable. Aureomycin, when given by the oral or intravenous route, fulfils these requirements (table 11).

An attempt was made to determine aureomycin levels in breast milk and to compare these levels with those present in the serum of maternity patients receiving small prophylactic doses of 2.0 Gm. daily. Certain technical difficulties arose in determining these levels because of the turbidity of such cultures. The fat was removed and lactalbumin coagulated with sulfuric acid. After neutralization, a serial twofold dilution technic was employed and the results recorded in table 12 were obtained.

The untoward reactions observed following aureomycin administration to these 117 patients were minimal (table 13). In 18 patients (15.4 per cent) gastrointestinal symptoms developed. All these symptoms were of minor importance and were readily alleviated by the administration of an aluminum hydroxide preparation [11] or paregoric. One patient, in whom a maculopapular skin rash developed, was found to be allergic, most probably to orange juice. She refused to drink the fruit juice again for confirmation, but she did return to the clinic two weeks later and then took 3.0 Gm. of aureomycin without any untoward manifestations. We do not believe that this case should be attributed to aureomycin toxicity. In 1 patient acute glossitis developed on the fifth day of therapy. Two days after discontinuation of aureomycin therapy, her tongue was almost normal in appearance. Other drugs could not be implicated, and the patient refused to take a second course of therapy. Similar reaction in other patients, not included in this study, taking aureomycin has been observed, but no evidence of sensitivity appears to be present. This reaction may be associated with the excretion of the antibiotic in the saliva.

TABLE 11.—*Studies on Placental Transfer of Aureomycin During Labor (8 Cases)*

Dosage (Mg.) of Aureomycin Given Intravenously to Mother	Level Before Drug	Interval Between Parenteral Administration and Delivery (Min.)	Aureomycin Levels at Time of Delivery in Micrograms per Milliliter	
			Maternal Serum	Infant Serum
200	0	20	8.0	1.0
200	0	30	0.5	0.5
200	0	40	4.0	2.0
200	0	70	8.0	1.0
200	0	75	2.0	1.0
200	0	102	4.0	2.0
200	0	170	2.0	1.0
200	0	225	4.0	1.0

TABLE 12.—*Studies on the Transfer of Aureomycin to Breast Milk (8 Cases)*

Daily Oral Dosage (Gm.)	Interval in Days Between Beginning of Therapy and Sampling	Aureomycin Level in Micrograms per Milliliter (Both Samples Taken Simultaneously)	
		Maternal Serum	Breast Milk
2.0	3	4.0	1.0
2.0	3	4.0	1.0
2.0	3	4.0	1.0
2.0	3	4.0	1.0
2.0	3	1.0	1.0
2.0	3	4.0	2.0
2.0	3	8.0	1.0
3.0	4	4.0	2.0

Aureomycin was occasionally employed intravenously when persistent emesis precluded oral therapy (table 14). The intravenous therapy was discontinued when the patient could tolerate oral medication. Aureomycin hydrochloride, 100 mg., was dissolved in 5.0 cc. of an L-leucine-buffered diluent. This solution could be administered only via the intravenous route because it was irritating when injected intramuscularly or when paravenous extravasation occurred. The dosage of the intravenously given aureomycin varied between 100 mg. on one occasion and 300 mg. every six hours for several days. No systemic reaction was observed from parenteral administration.

The daily fluid intake and output was recorded for the majority of these patients (table 15) because of a

11. Subsequent observations by William P. Boger and John C. Seed would indicate that aluminum hydroxide preparations interfere with the absorption of aureomycin and should not be employed routinely.

diuretic effect noted in other infections treated with aureomycin.[2b] The average daily output was not more than that usually observed in the normal postpartum diuresis. Some patients stated that they noted increased thirst during therapy, but this was not substantiated by actual measurement of the fluid intake. One observation of interest among these 117 treated patients was the occurrence of oral temperatures below 98 F. on two or more days in 44 per cent of the cases. Since errors and variability occur with oral temperatures, these observations may not be too significant unless supported by further experience. No nonspecific antipyretic effect of aureomycin has been noted in a large series of cases studied.

SUMMARY

1. The normal postpartum uterus contains a wide variety of bacteria. An anaerobic streptococcus of various types is the predominant organism, and it is usually associated with other less frequently occurring gram-positive and gram-negative micro-organisms.

2. The vast majority of both gram-positive and gram-negative micro-organisms isolated during this study were susceptible to aureomycin by in vitro tests. The in vitro results appeared to correlate with the response observed in the patients.

3. Postpartum uterine cultures were obtained from 109 patients receiving aureomycin hydrochloride and from 24 patients who did not receive a chemotherapeutic agent; 11.9 per cent of the aureomycin series showed positive cultures compared to 75 per cent of the control series.

4. Aureomycin proved effective in various obstetric infections such as peritonitis, endometritis, parametritis, infected abortions and intrapartum infections.

5. Patients with acute and chronic infections of the urinary tract treated during pregnancy responded satisfactorily to therapy, although several relapsed when treatment was discontinued.

6. The indications for prophylactic administration of aureomycin during labor and the early puerperium are discussed, and the observations on 75 cases are analyzed.

7. Placental and mammary transfer of aureomycin occurs rapidly and in high concentrations.

8. Aureomycin is a desirable chemotherapeutic agent because it is effective after oral administration, it possesses a wide range of antibacterial activity and it is unassociated with serious toxic manifestations.

ADDENDUM

Since this report was submitted 9 additional patients with acute endometritis, 2 of whom also had parametritis, were treated with aureomycin with prompt clinical cure. Seven additional patients with acute and chronic urinary tract infections due to coliaerogenes bacilli or alpha prime streptococci and staphylococci have been successfully treated and have shown no recurrence of their infection. One patient, with premature rupture of her membranes during labor, had an intrapartum infection and received aureomycin intravenously and orally. She became afebrile within twenty-four hours, and convalescence was uneventful.

A preparation of aureomycin hydrochloride for intravenous use in which sodium glycinate was incorporated in the ampul has been used subsequent to this study and has been found preferable to that dissolved in the L-leucine-buffered diluent.

PSYCHOSOMATIC ASPECTS OF FRIGIDITY

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Frigidity is one of the most common problems in gynecology. Gynecologists and psychiatrists, especially, are aware that perhaps 75 per cent of all women derive little or no pleasure from the sexual act. Many women not only experience no pleasure, but actually suffer pain and revulsion. This fact assumes added significance from a sociologic and religious aspect because of increasing extramarital promiscuity and the present high divorce rate. In most instances these manifestations of neurotic behavior are due to the symptom of frigidity, which is present to some degree in even the simplest neuroses.

Bergler [1] explains frigidity by four different theories. The first is a sexual-rejecting theory, that is, frigidity may represent the natural behavior of the highly moral and cultured woman. According to this theory, it is the direct characteristic of the respectable woman not to feel sexual pleasure but to reject everything sexual as indecent or at best to submit but passively to the male. The second theory concerns the patient herself—she, of course, can be aroused; she merely cannot experience orgasm, that is, release from sexual tension. The third theory deals in general terms with the extent of the emotional satisfaction of the woman in coitus. This is the "clitoric theory." According to this theory, sexuality is masturbation *a deux* and it does not matter how or when the woman derives gratification, before, during or after coitus. A fourth theory, the vaginal, defines frigidity as the incapacity of women to have a vaginal orgasm. The sole criterion of true frigidity is the absence of vaginal orgasm. The latter theory is accepted by most psychiatrists. However, Kinsey [2] doubts the validity of this differentiation between clitoric and vaginal orgasm. His opinion is based on the anatomic evidence that most of the vagina is without sensory nerves.

However, as a general rule, the question of what constitutes true frigidity depends on whether clitoric or vaginal response is achieved. It is believed that the clitoris does not often come into contact with the male organ during intercourse, and, if a transfer in sensation occurs from the clitoris to the vagina, it is purely psychologic and unconscious. In completely frigid women this psychologic transmission is always disturbed. Therefore, the problem of frigidity is reduced to a psychologic basis.

It is most unfortunate that frigidity has received relatively little attention in the gynecologic literature, no doubt because relatively few women present themselves to gynecologists with the complaint of frigidity alone. Surprising as it may seem, many women remain in lifelong ignorance of the fact that coitus can culminate in orgasm for them, too, and this ignorance can be maintained in otherwise intelligent women, since their role in coitus requires no "potency" comparable to that required of men. Furthermore, many women who are frequently or regularly frigid, but who realize they

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1. Bergler, E.: The Problem of Frigidity, Psychiatric Quart. 18:375, 1944.

2. Kinsey, A. C.; Pomeroy, W. B., and Martin, C. E.: Sexual Behavior in the Human Male, Philadelphia, W. B. Saunders, Company, 1948.

are expected to experience pleasure, simulate pleasure responses and orgasm in order to please (and deceive) the man.

The gynecologist who does not understand such psychologic considerations will search for various physical abnormalities, such as the size or structure of the genitals, the accessibility of the clitoris or the position of the uterus; he will look for inflammations, fissures, ulcerations and injuries, and he may attribute the frigidity to whatever lesion he finds. He seldom realizes that these women are actually indulging in a psychologic masquerade, using their symptoms as an excuse for failure to enjoy sexual intercourse. Nearly all of our patients presented themselves with extraneous complaints—dysmenorrhea, pelvic pain, backache, menstrual migraine headaches and a host of other symptoms—as alibis for their lack of sexual gratification. Some even had had as many as two abdominal operations without relief of their original complaints. It is also astonishing how infrequently the psychosexual history is ever discussed by either the physician or the patient, even though many of the symptoms involving the sexual organs are treated. The psychosomatically oriented gynecologist will intuitively single out those women who derive no sexual gratification and also those who are using physical symptoms as a pretext for consulting him.

Finally, it should be emphasized that true frigidity, pseudofrigidity, dyspareunia and vaginismus are not distinct clinical entities but are only symptoms of a deep-seated disturbance of the woman's early psychosexual development. There are, however, different types of emotional conflicts and psychologic mechanisms involved in the etiology, as well as degrees and variations of such disturbances.

CLASSIFICATION OF FRIGIDITY

A variety of classifications of true frigidity have been prepared by many excellent workers. The Menninger [3] and the Hitschman and Bergler [4] classifications, based on the degree of pleasurable sensitivity in the genitals and the varieties of frigidity, ranging from great aversion and painful submission to frigidity of the nymphomaniac type, are excellent. Also, the Rado [5] modification, based on reactions to sexual anxiety, was taken into consideration. For purposes of simplicity, we have resolved these groupings into two subdivisions: (1) true frigidity founded on purely psychic mechanisms and (2) true frigidity founded on psychophysical mechanisms.

This classification excludes cases which involve aplasias, hypoplasias, acquired organic lesions of the genitals, the consequences of destructive operations or accidents, incorrect technic, complete sexual ignorance and male impotence, which must be classified as pseudofrigidity, as distinguished from true frigidity. Also excluded are the so-called facultative cases in which the frigidity disappears and a normal orgasm is possible with certain men.

True frigidity on a purely psychic basis may be due to fear of punishment for violation of sexual prohibitions. Again, frigidity may be due to conflicting loves, that is, love of father as opposed to love of husband, love of self as contrasted to love of husband and love of other women as opposed to love of men as represented by the husband. Unconscious resentments and hates with reference to a wish for revenge on men, based on the castration complex, or a wish to avenge the mother for all the suffering she went through at the hands of the father may also lead to this type of frigidity.

Included in this classification are many types of women in whom frigidity may be concealed and others in whom it is more overt—who use it as an escape, or flight from their own inadequacies. In this group are homosexuals, aggressive old maids, agitative female "champions" in constant competition with men, narcissistic women and violent espousers of virginity. All these types are presumptively frigid, and their frigidity includes no physical sex factor.

In the second classification there is a "contact factor" added to the psychic disturbance. In this classification is the "gold-digger," who is financially exploiting many sexual partners and husbands. The prostitute and the nymphomaniac, the latter in a search for satisfaction which is never achieved, belong to this group. The members of this class may make a partial adjustment and become involved in marriage, but this solves the problem only outwardly. A closer inspection will demonstrate the same pattern of flight and combat interwoven with the marriage thread. The marital union may be characterized by refusal to assume any serious obligation of wifehood or motherhood. There may be an excessive compensatory interest in card playing and club and sport pursuits and a proportionate neglect of the husband. This type will take great interest in traveling alone, in purchasing expensive clothes, perhaps even in the aggressive pursuit of a career. Pregnancy is avoided as a nuisance or even a calamity.

On the other hand, still within the second group, there are those women who carry out their wifely duties with overwhelming vigor—as an escape and also to the exclusion of the husband. They have complete absorption in the household to the point of obsessional cleanliness and orderliness. There may be a flurry of glorified motherhood, resulting in numerous children conceived with indifference and lack of pleasure, on whom there is bestowed a surprising excess of attention and solicitude, the husband, as always, being relegated to the background. These women may assume a lifetime of martyrdom, resignation and suffering. The adoption of extreme prudishness is also not uncommon, so that nothing but frigidity can result.

In this second grouping the physical factor is definitely proved, in that there is a demonstrable relationship between the type and degree of frigidity and the sensitivity of the vagina. Vaginal sensitivity may vary from complete anesthesia to exquisite receptivity. The personal attitude may range from complete revulsion, disgust and the desire "to get it over with in a hurry" to a strong sense of excitement, mounting repeatedly but with no orgasmic climax and hence the hope for contact of longer duration. The vaginal secretion may be absent, scanty or voluminous. There may or may not be a clitoric orgasm, but there is never a "true vaginal orgasm."

All these possibilities, or a combination of any of them, occur in frigid women. They can also occur in women with vaginismus and dyspareunia.

Weiss and English [6] have a simpler classification of frigidity in women, based on the degree of the severity of the frigidity: (1) occasional failure to obtain orgasm; (2) only occasional orgasm; (3) mild pleasure

3. Menninger, K. A.: Impotence and Frigidity, in Man Against Himself, New York, Harcourt, Brace and Company, Inc., 1938.
4. Hitschman, E., and Bergler, E.: Frigidity in Women: Its Characteristics and Treatment, New York, Nervous and Mental Disease Publishing Company, 1936.
5. Rado, S.: Fear of Castration in Women, Psychoanalyt. Quart. 2:425, 1933.
6. Weiss, E., and English, O. E.: Psychosomatic Medicine, New York, W. B. Saunders Company, 1943, p. 364.

in coitus, but without orgasm; (4) vaginal anesthesia with no special aversion to coitus, and (5) dyspareunia and vaginismus. All except the first are usually accompanied by some lack of vaginal secretion.

PSYCHODYNAMIC FACTORS

This disturbance is based on the theory that the psychosexual factors in feminine development actually involve two organs, the clitoris and the vagina. The clitoris plays the dominant role in childhood and in adulthood masturbation. This is the most easily discovered part of the female genitalia and the one which yields the most pleasure when stimulated. Therefore, in childhood, all the attention is focused on the clitoris. This leads to suppression of the awareness of the vagina. In women fixated at the clitoric level of their childhood, there is a complete lack of all pleasurable vaginal sensitivity to stimulation. This is due to the previous denial of the vagina and the after-effects of pleasure-seeking at the clitoris. The other organ is the vagina, which is psychologically unimportant until puberty. Hence, in the child the clitoris gives sexual satisfaction, while in the normal adult woman the vagina is supposed to be the principal sexual organ. As already mentioned, in frigid women the transference of sexual satisfaction and excitement from the clitoris to the vagina, which usually occurs with emotional maturation, does not take place. Therefore, it is considered that such women possess an infantile erotic zone, not an adult one.

These women are fixated or arrested in their psychosexual development at the clitoric or phallic phase of their childhood. This is the period, prior to the time when the little girl falls in love with her father, during which she dislikes her own sex and identifies with the male sex, wishing she were a boy. Women who remain fixated at this stage of their development hate intercourse. They think the penis is disgusting. Even though they are afraid of the male organ, they fear even more their own unconscious destructive or castrative tendencies against it. Then again, frigidity may be a defense against infantile incestuous wishes for the father and also against the deeper unconscious wish to destroy the penis. In some women this inner inhibition of pleasurable sensations is necessary, because such women are afraid of the unconscious implications of orgasm. During an orgasm they fear they might lose conscious control over their instinctive strivings and actually injure the penis of the one they consciously love. Then, there are those women who are unconsciously hostile toward the penis because of their childhood belief that they were deprived of one (castration complex). When these women are finally forced to accept their femininity (passivity), they ignore this biologic fact and resent it as castration, thus unconsciously hating the male. This type of rejection of the feminine role because of envy or jealousy of the male always results in total frigidity and unconscious guilt feelings.

The vaginal anesthesia which follows these guilt feelings and which is present in many frigid women probably represents an inner denial of the normal pleasurable sensations derived from intercourse. To these women the husband still unconsciously symbolizes the father, and, therefore, intercourse with him is not allowed to yield pleasurable sensations. Since sexual desires for the father were once forbidden, then sexual pleasure with the husband, who is now unconsciously identified with the father, is impossible.

The "normal" woman, during the sex act, should be passive and receptive of the penis. Her passivity must be fully used in her sexuality, her active tendencies in her vocations and other interests.

Regarding the etiology of frigidity, it is felt that potent disturbing factors arise in early female development on the basis of the actual anatomic structure of the female genitals and their differences from those of the male. Those who follow Freud's thinking in regard to female sexuality seem to place the main emphasis on the little girl's reaction to the discovery that she is lacking in the external sexual organ possessed by the boy, so that she believes that she, too, must once have had a penis, of which she was punitively deprived by the parents, or that she will somehow be given one or will grow one later. Subsequently, fears, envies and resentments proceed from the shock of this discovery and initiate the development of conflicting hate and love toward parents, siblings and other significant persons. Later in adulthood, distorted sexual theories and neurotic attitudes, symptoms and personality traits derive from this source.[7]

All investigators seem to agree that the reactions of envy of men and fear of damage to their genitals play at least some part in the psychosexual maturation of every girl and that in many cases they are the dominating factors in the development of the psychopathology responsible for the symptom complex of frigidity.

Those who disagree with Freud in his formulations regarding female psychosexual development differ mainly in respect to whether or not the primary emphasis should be placed on envy, based on the actual anatomic differences previously described. Some believe that the reaction to the discovery of anatomic differences is secondary, that women's envy of man is based more on his traditionally greater freedom, power and privilege and that reactions and anxieties referable to the female genitals themselves do not necessarily involve anatomic comparisons.

It must be admitted that for sociologic and cultural reasons the female sex is hedged about by sexual restrictions to a much greater degree than is the male sex. Furthermore, female violations of these mores are more critically regarded than are similar actions in men. In regard to premarital and extramarital sexual experiences, the so-called double standard also operates heavily against women in comparison with men, imposing grossly unequal social condemnation on women who circumvent convention in ways indiscreet enough to result in scandal. Men who overstep the bounds of propriety, even though they be criticized and condemned, still have the benefit of some public approbation. They may even arouse jealousy or admiration from men who would be most intolerant of similar conduct in women. The overprotected and prohibition-ridden upbringing of girls, requiring their adherence to a rigid and somewhat traditional code of conduct, is also a powerful factor in producing in the woman emotionally unhealthy attitudes, prejudices and fears with respect to sexual enjoyment.[8] Also, aversions, revulsions and anxieties referable to menstruation, intercourse, pregnancy, childbirth, lactation, child training, female diseases and the menopause are commonly transmitted by neurotic and ignorant women to girls and young women, even though mental hygiene enlightenment is bringing about a significant reduction in this type of harmful conditioning.

7. Freud, S.: New Introductory Lectures on Psychoanalysis, New York, Garden City Publishing Company, 1933.

8. Knight, R. P.: Seven Functional Disturbances in the Sexual Life of Women, Bull. Menninger Clin. **7**: 26 and 27, 1943.

DIAGNOSIS OF FRIGIDITY

The first consideration of any such problem should be an attempt to determine, if possible, whether or not true neurotic frigidity is present. If a physical examination of both partners reveals no structural reasons for frigidity, then the assumption is valid that superficial and accessible emotional problems are present which are interfering with the normal sexual function. If no such problems are present, the physician must assume that he is dealing with a case of true frigidity. He must inform the husband that the man can easily be deceived by a clever woman in many things, including the alleged pleasure in intercourse. He should adequately apprise the husband that in only one thing is the wife completely helpless, and that is in controlling the involuntary contractions of the pelvic and perineal muscles that take place at the end of the sex act. This should be the sole criterion to use in determining the presence or absence of orgasm. The woman has absolutely no conscious control over the muscles involved in these involuntary contractions. Since the man feels these contractions at the end of the sex act, any attempt at simulation is impossible, provided, of course, that the man is so informed. However, suffice it to say that most men are absolutely naive and ignorant of this fact.[9]

Another fact, though less reliable, is the absence of the glandular lubricating secretion produced at the entrance of the vagina before and during coitus, which is a presumptive sign of frigidity; the converse, however, is not true. The presence of adequate secretion does not exclude the presence of one of the many forms of frigidity, since many women have a leukorrheal discharge that may be mistaken for glandular secretions. The diagnosis of pseudofrigidity due to male impotence, incorrect technic, that is premature ejaculation, coitus interruptus and intracrural intercourse, effects of destructive surgical procedures on the genitals and organic lesions can be made on the basis of the physical examination and by careful and sympathetic questioning.

PROPHYLACTIC TREATMENT

Gynecologists should pay more attention to the prevention of frigidity by providing more effective sex education and, in particular, adequate premarital advice for young persons. Also, gynecologists should assume the responsibility for the development of good mental hygiene and more normal sex attitudes in these patients as the logical approach to the ultimate solution of the problem of frigidity as well as the prevention of other neuroses. With more enlightenment parents will know enough about human behavior to avoid the psychic traumas they have unwittingly inflicted on their children. Parents should intelligently assist their children toward normal happiness leading to integrated emotional lives.

The following recommendations to parents and educators are suggested by Knight.[10]

1. In general, a home atmosphere characterized by security, affection and tolerance, absence of parental disagreement before the children and consistent giving of affection and enforcing of discipline by both parents to all the children constitutes good prophylaxis against all later emotional and psychosexual disorders.

2. It is particularly important that parents and older brothers and sisters do nothing to influence a child of one sex toward behavior and feelings appropriate to the other sex. When the parents have wanted a boy, for example, and instead a girl is born, it is essential that the little girl should not be apprised of the parental hopes and regrets in this regard. Also, she should be permitted and encouraged to be normally feminine and should not be "processed" into a tomboy because they would have preferred a boy.

3. No matter how difficult the delivery of this girl was (or that of any of the other children) or how near death the mother was during or after childbirth, this story of suffering and miraculous escape from death should never be related to the little girl.

4. The parents, especially the mother, should take a practical, unembarrassed attitude toward matters of bathing, toilet training, childhood masturbation or childhood sexual exposures and experimentation with playmates, so that prudery is not furthered. Parental indignation, intimidation and severe punishment for childhood sexual manifestations do many times more harm than the experiences themselves.

5. It is probably desirable that children of both sexes be permitted to play about naked and bathe before each other during the first eight or ten years.

6. Children should, if at all possible, sleep alone in rooms of their own. It is always deleterious psychologically for children to sleep in the same bed or same room with the parents, especially if they observe or overhear parental coitus.

7. Unembarrassed explanations and preparation for the onset of menstruation before it happens should always be made by the mother.

8. Education of the little girl toward chastity can easily be overdone. Repeated warnings against boys and men as nasty, cruel beasts constantly seeking to take advantage of and ruin girls and women are much worse than no education at all.

9. Children's sexual curiosity expressed in questions should always be answered fully and correctly. Children pay more attention to the tone of voice and attitude of the parent doing the explaining than they do toward the information itself. Hence, they detect uneasiness or embarrassment in the parent when such sexual information is given and as a result react with similar feelings of their own.

TREATMENT

Frigidity (due to emotional factors) requires a thorough psychologic investigation following a gynecologic check-up. If the examination does not reveal abnormalities, then one must determine the degree of disturbance and the dynamic psychologic factors that may be operating in that particular patient. The gynecologist may attempt reeducation and reassurance, and, if these measures are ineffective, psychotherapy by a psychiatrist or psychoanalyst (preferably a man) should be recommended.

The problem of frigidity will definitely belong in the domain of gynecology when more gynecologists receive psychiatric instruction. As we have emphasized, the gynecologist and obstetrician have a closer relationship with the emotional problems of their patients than physicians in any other specialty, with the exception of psychiatry. Since the problem of frigidity is primarily emotional rather than somatic, one might question the gynecologist's right to help these women, even if only to a degree. The answer to this question is that the gynecologist observes the condition when it is relatively early, and therefore, because of a closer rapport, the patient is more amenable to therapy. However, it is important to know to what degree the gynecologist may be useful and approximately when and why he should limit his efforts and seek aid from the psychiatrist.

For these reasons, we feel that it is necessary to amplify the practical therapeutic approach which gynecologists, untrained in psychiatry, must take toward the common symptom of frigidity. The gynecologist must also take into consideration the advisability and efficacy of the type of therapy that he is capable of giving.

9. Fenichel, O.: The Psychoanalytic Theory of Neurosis, New York, W. W. Norton & Company, Inc., 1944.

10. Knight, R. P.: Functional Disturbances in the Sexual Life of Women, Bull. Menninger Clin. 7: 32 and 33, 1943.

The prognosis will depend on the type of frigidity and the degree of regression indicated by the behavior patterns or the childhood level at which the patient is fixated. Some patients are too deeply rooted in neuroses or character disorders or their desire for correction is too slight for superficial treatment to be effective. In these cases psychologic tests of the projective type, such as Rorschach and Thematic Apperception tests, are of great value in determining the need for and type of psychotherapy.

In considering this symptom complex, it must be borne in mind once more that we are concerned with true frigidity, which is the type most refractory to therapy, as differentiated from pseudofrigidity, discussed previously. It must be emphasized that "frigidity" in gynecologic terminology means any interference with normal sexual gratification, no matter what the cause, but to most psychiatrists true frigidity means the incapacity of women to have a vaginal orgasm, based on unconscious factors.

Because of the enormous number of patients with frigidity being seen by the all too meager number of competent psychotherapists, a more efficacious and rapid form of therapy is indicated. Current treatment involving androgen, even if successful, is only substitutional. Surgical procedures such as circumcision of the clitoris are valueless. Until several years ago psychoanalysis was the only treatment available for the deep-seated emotional disorders causing true frigidity. Psychoanalysis, while fairly successful, is expensive and time-consuming and requires extensive technical training for the therapeutist. Since it is the gynecologist who treats the vast majority of functional gynecologic disturbances, he should be capable of understanding those conditions that are of psychologic origin. In order to be able to do this, a knowledge of psychopathology is as indispensable as is a knowledge of histopathology. Certain institutions now have such training available for physicians who have had no previous psychiatric training. The gynecologist can and should be his own psychiatrist. Also, it has been our experience that if the authority is invested in one person better results will be obtained.

SUPERFICIAL PSYCHOTHERAPY

Brief psychotherapy consisting of assurance, education, sympathetic listening and interest will generally evoke specific conflicts that can readily be resolved. Attention has been called to some of the superficial and accessible conflicts responsible for pseudofrigidity which the gynecologist will be able to elicit and treat. Some of these are enumerated in the following paragraphs, and it should be recognized that they will be as varied and numerous as are the personalities, environment and cultural backgrounds of the persons presenting them.

One type of conflict is based on the fact that many women are discouraged when they fail to receive gratification from their early coital attempts. All they need is the encouragement and the knowledge that sexual gratification consists of variable responses and that it will eventually be achieved. We wish to emphasize that failure to attain this satisfaction often creates in the woman a feeling of inadequacy; she becomes fearful and feels inferior, and thus a vicious cycle is established which may become irreversible unless she receives wise counsel and encouragement from the physician. These patients should be told that with most women a gratifying sexual life is rarely developed during the first few attempts.

In some women pseudofrigidity is common, even though they have normal libido drives. They are only temporarily inhibited by some situation or circumstance of their sexual lives, the correction of which leaves them free to establish or reestablish a normal function. Frequently, the patient is handicapped by her faulty attitude toward her difficulty. Having begun her active sexual life only to meet disappointment and frustration, the reasons for which are more or less obscure to her, time confirms her disappointment and she tends to assume an attitude of indifference which soon gives way to hostility and resentment. She acquires an attitude of defeat, looks for escape and consciously or unconsciously is tormented by feelings of inferiority and guilt. These women are desperately in need of help, perhaps more so than the truly frigid woman, for they have some idea of what they are missing in the emotional fulfilment of their lives. These are the persons that the gynecologist may be able to help if he succeeds in discovering the essential elements of their problem.

A third type of conflict may be caused by the atmosphere and environment in which sexual intercourse occurs. The woman may need and lack a feeling of complete security. Her insecurity may stem from seemingly trivial things, such as an open window shade, an unlocked bedroom door or a bedroom window too close to the adjoining house. Inadequate housing which causes the couple to live with parents may produce more than the ordinary personal conflicts resulting from two families living under one roof. The self-consciousness and guilt associated with the sexual activities of two young persons living their sexual lives figuratively under the eyes and within the hearing of the parents is almost inevitable, for these same parents have often, by means of previous taboos and threats, sought to control the early sexual drives of their children. The mere legal sanction of marriage is not sufficient to allay or completely change their attitudes. No matter how trivial these factors may seem to the husband or physician, if their correction cures the frigidity, they are obviously important.

Personal habits may provide a fourth type of conflict. If the partner is not fastidious in the care of his person —too few baths and too infrequent care of the teeth, for example—the woman may feel disgust and be unable to participate freely and happily in intercourse. The husband may wish to indulge in certain types of sexual play which the woman feels are abnormal; she may be offended by his desire to experiment with what she considers abnormal postures for intercourse. He may have a deep need for the gratification of a desire to see his partner in the nude and may want some light in the room, whereas her sense of modesty and decorum may be offended by these procedures, with resulting inhibition of all sexual pleasure. All or many of these conflicts may be indicative of neurotically fixed personality patterns, but they are not necessarily permanent and may be corrected by proper education.

Some minor and more easily corrected conditions are coitus interruptus, digital stimulation of the clitoris to achieve orgasm, intracrural intercourse and a real or imagined difference in the size of the penis and vagina. In these latter instances the women say the penis is too big or too small, but in almost every case it will be found that faulty attitudes and incorrect technics are responsible. In this connection, an extremely promiscuous and totally frigid woman once told one of us (W. S. K.) that the only time she had achieved an orgasm was with a man who had the smallest penis she

had ever seen. However, occasionally the vagina is definitely too big, or rather, the muscles are too lax, for the woman to vaginally perceive or feel the penis. Proper episiotomies and plastic surgical procedures performed routinely on the vagina in such patients will eliminate the source of trouble.

Fear of pregnancy, pain from perineal repair and lack of confidence in contraceptive methods need no development as a common cause of pseudofrigidity. These are often seen after difficult labors and trying periods with the new baby, when the patient associates intercourse with the cause of all her pain, fatigue, anxiety and loss of freedom.

The relative impotence of the husband, premature ejaculation, ineptness or ignorance on the part of the husband or any number of other conditions or misunderstandings, for which one or both partners may be responsible, may be causative factors in pseudofrigidity and may be corrected by proper psychotherapy.

These are some of the important factors which may influence this most intimate of human relationships to the extent that some degree of pseudofrigidity may result. Also, these are the patients with whom the gynecologist will have a good degree of success in achieving a cure.

HYPNOTHERAPY

One must realize that true frigidity cannot be cured by appealing to the patient's conscious processes and that threats and recriminations are valueless. We have found that the psychiatrically trained gynecologist can apply hypnoanalysis, which is a modification of hypnosis and is a more rational and effective form of psychotherapy because less time and training is required than for orthodox psychoanalysis. This modern and scientific method of therapy has been successfully utilized by us in the fields of both gynecology and obstetrics.[11] The experimental work of Erickson [12] and others has shown that the objections to hypnosis as a therapeutic procedure can be eradicated by use of hypnoanalysis. The technics described by Wolberg,[13] Brenman,[14] Gill [15] and Kubie [16] also include the knowledge about the unconscious acquired through psychoanalysis. Bergler [17] maintains, ". . . a typical frigid woman does not suffer from a deficiency of libido, but from a neurosis." Hence, hypnotherapy is ideal for the treatment of true frigidity, because every neurosis is an illness of the unconscious.

The analytically oriented psychiatrist might question the efficacy of using hypnosis or hypnoanalysis. The advantages of hypnoanalysis are that the therapist uses the material divulged under hypnosis to guide his analysis more quickly and efficiently toward the unconscious conflict. On the other hand, some psychoanalysts believe that hypnosis can seldom be as effective a substitute for conscious recognition by the patient of her irrational conflict as that which is attained by the slower technics used by psychoanalysis.

PSYCHOANALYTIC THERAPY

Some of the conflicts discussed previously may appear to be the real factors responsible for either type of frigidity. Psychoanalysis recognizes that these may merely be rationalizations by the patient which are but a facade for deeper and more unconscious inhibiting elements in her personality. The gynecologist must also familiarize himself with some of the unconscious and less accessible conflicts in the psychologic lives of frigid women, even though, unless specially trained, he may not be able to deal with all of them. If he is untrained, some of the psychodynamic concepts may seem unacceptable to him, but there is no doubt that psychoanalysis has well established the following concepts as sound clinical entities responsible for the conflicts resulting in true frigidity.

Although the physician who has not been trained in psychoanalysis will not be able to use these technics, he will nevertheless find it extremely valuable to have a good understanding of the following concepts, which psychoanalysis utilizes in uncovering the unconscious conflicts responsible for true frigidity. The sine qua non of therapy is that these unconscious conflicts must be made conscious, and this can be more effectively accomplished through adequate analytic interpretation and subsequent insight. Reynolds [18] has discussed some of the more important dynamisms as follows:

1. Guilt feelings because of infidelity on the part of the patient may be a factor responsible for frigidity. The patient may be in love with another man or, less than that, she may merely feel a sexual attraction toward other men, and, as a result, her guilty conscience may cause her to be inhibited with her husband. Or, she may think that her husband is unfaithful to her, and the resulting hostility toward him will, by itself, produce frigidity. (It should be borne in mind that all the reactions in this group may well be unconscious and accessible only to deeper analytic technic, for any conflict producing guilt and anxiety tends to be repressed.) The frigid women in this group are unable to react normally in the sexual relationship for reasons of which they are totally unaware. Thus, the ordinary approach of discussion and reeducation is useless. These are the persons who must be referred to the analytically oriented psychiatrist.

2. Since religion and/or morality assume a prominent role in the etiology of true frigidity, considerable reeducation will be necessary to overcome their ill effects. There is no question that this generation has had better sex education than that of its predecessors, but sex is still taboo, dirty and sinful to a large number of frigid women. These women enter married life often intensely desiring to be good sexual partners, but due to the repressed conditioning of their childhood and adolescence, they are completely incapable of enjoying an act which they unconsciously believe wrong. A girl cannot be told that sex is wicked and immoral for her entire life and then, just because the religious or civil ceremony is performed, enjoy sex. Frigidity results, despite the fact that these women often sensibly and objectively recognize the irrationality of their feelings. Thus, morality has been used to restrain and control illicit sexual relations to such an extent that in many minds, all sexual relations are impure and taboo.

3. Psychoanalysis explains the Oedipus complex as an arrested emotional development at the level of childhood, when the love object is the parent of the opposite sex. Thus, the woman with such an arrested development in her emotional life tends to seek a husband who approximates as nearly as possible the image of her father. As already mentioned, the

11. Kroger, W. S.: The Treatment of Psychogynecic Disorders by Hypnoanalysis, Am. J. Obst. & Gynec. **52**: 409, 1946. Kroger, W. S., and DeLee, S. T.: Psychosomatic Treatment of Hyperemesis Gravidarum, Am. J. Obst. & Gynec. **51**: 544, 1946. Kroger, W. S., and Freed, S. C.: Psychosomatic Treatment of Functional Dysmenorrhea, Am. J. Obst. & Gynec. **46**: 817, 1943; Psychosomatic Factors in Functional Amenorrhea, Am. J. Obst. & Gynec. **59**: 328, 1950; Psychosomatic Aspects of Sterility, Am. J. Obst. & Gynec. **59**: 867, 1950.

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13. Wolberg, L.: Hypnoanalysis, New York, Grune & Stratton, Inc., 1945; Medical Hypnosis, New York, Grune & Stratton, Inc., 1948, vol. 1 and 2.

14. Brenman, M., and Gill, M. M.: Hypnotherapy, New York, Josiah Macy, Jr., Foundation, 1944. Brenman, M.; Gill, M. M., and Hacker, F.: Alterations in the State of Ego, Bull. Menninger Clin. **2**: 60, 1947.

15. Gill, M. M.: Spontaneous Regression on the Induction of Hypnosis, Bull. Menninger Clin. **12**: 41, 1948.

16. Kubie, L. S.: The Use of Induced Hypnogogic Reveries in the Recovery of Repressed Amnesic Data, Bull. Menninger Clin. **7**: 172, 1943.

17. Bergler, E.: The Problem of Frigidity, Psychiatric Quart. **18**: 374, 1944.

18. Reynolds, P. A., in discussion on paper (unpublished) by A. M. Vollmer read before the Los Angeles Gynecological Society, October 1948.

ordinary experience of living with such a mate is satisfactory and acceptable, but unfortunately the sexual relationship connotes incest and reactivates earlier oedipal anxieties, thus producing a severe conflict, guilt and total frigidity.

4. Hostility toward all men may be a factor in the production of frigidity. Many women are unconsciously envious of the male role and resent man's domination and so-called superiority. This accounts for the "masculine protest," based on their envy of the penis and castration complex, which have been previously mentioned. Their frigidity is a protest against submission and the giving of pleasure and satisfaction to the male. Also, with such women, marriage merely satisfies narcissistic needs.

5. Latent homosexuality may be another factor. This condition is present much more frequently than was formerly recognized. Some degree of latent homosexuality may be present without seriously crippling the emotional life of the patient in her heterosexual relationships, but it may, if strong enough, cause frigidity.

6. Narcissism, or too much self love, may be still another factor. A degree of self love is necessary to establish self respect. Normally, love for another person is an overflow from self love. In the narcissistic person there is no love left over for the sexual partner, with resulting frigidity.

7. The emotionally immature woman who has never accepted adulthood presents another factor causing frigidity. She still clings to her childhood dependency state, and, since sexual maturity definitely denotes an adult role, it is impossible for her to attain sexual satisfaction. In reality she is still at the doll-playing stage of emotional development and, as a consequence, is a poor sexual partner or mother.

These and other emotional conflicts are problems for the analytically trained psychiatrist. The reeducation and making conscious the unconscious emotional attitudes of these women is often a difficult, tedious and expensive process which needs the most expert guidance. In this respect we wish to emphasize that obstetricians and gynecologists must know their limitations in the field of psychotherapy lest they do more harm than good. However, brief psychotherapy, hypnotherapy and directive therapy are within the orbit of the psychodynamically oriented gynecologist.

SUMMARY

1. True frigidity is a common problem in gynecology.

2. The specialties of gynecology and psychiatry overlap. Psychologic factors are solely responsible for the symptom complex of true frigidity, which is a neurotic illness.

3. Other "symptom equivalents" often mask this "organ neurosis," since, in the vast majority of patients, especially those with functional gynecologic disorders, there is some psychologic cause for their physiologically expressed disturbances.

4. The etiologic factors for the symptom complex of pseudofrigidity and true frigidity are differentiated and discussed.

5. Understanding of the psychodynamics of frigidity will enable the physician to treat it more adequately.

6. Appropriate measures for the prevention of this condition are outlined.

7. Although it is readily acknowledged that the diagnosis and treatment of the emotional phase of this disorder is in the province of the psychiatrist, we believe that the gynecologist should have some understanding of, if not actual training in, psychiatry in order to treat the problem more effectively.

8. We have attempted to illustrate how the physician who has not had psychiatric training may successfully employ such psychotherapy as his understanding permits.

9. Hypnoanalysis and psychoanalysis are recommended. The former varies only in method and is a tremendous timesaver.

10. The object of therapy is to alleviate the symptoms by giving the patient insight into the conscious and unconscious factors responsible for her frigidity. This may be accomplished by use of "superficial" psychotherapy, hypnotherapy and psychoanalysis.

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TREATMENT OF PNEUMONIA IN CHILDREN WITH A SINGLE INJECTION OF REPOSITORY PENICILLIN

A Study of Height and Duration of Penicillin Levels

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The use of penicillin in the treatment of pneumonia in outpatients was made practical by its suspension in oil and beeswax. Although the use of such a preparation in children was satisfactory,[1] daily injections were necessary and in adults reactions were frequent.[2] Therefore, following the report of Tillett, Cambier and McCormack,[3] and later the experimental work of several investigators,[4] a twelve hour schedule of aqueous penicillin intramuscularly was chosen for use in the pediatric outpatient department of this hospital. For the past two years such a schedule has been used successfully. It has, however, posed a twofold problem: first, the inconvenience to the parents and possible harm to the patient of repeated dispensary visits; second, the increased burden on the nursing and administrative facilities of the outpatient department. For these reasons, a study of the effectiveness of a new repository penicillin giving therapeutic levels for several days was undertaken.

MATERIAL AND METHOD OF STUDY

A preparation of crystalline penicillin G procaine suspended in peanut oil containing 2 per cent aluminum monostearate [5] was used. This preparation was supplied in 10 cc. vials containing 300,000 units per cubic centimeter. The peanut oil used as a vehicle was depro-

From the Harriet Lane Home of the Johns Hopkins Hospital and the Department of Pediatrics, Johns Hopkins University School of Medicine.

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5. Material used was supplied by the Upjohn Company, Kalamazoo, Mich.

teinized, and the penicillin particle size was less than 5 microns.

Between Jan. 1 and May 15, 1949, in 106 consecutive cases diagnosed as pneumonia on the first dispensary visit the patients received the repository penicillin. Ninety-one of these cases are reviewed here, the other 15 being excluded from this study because of mistaken diagnosis, inadequate follow-up or inclusion through error of additional penicillin therapy. All cases admitted to this study were seen and followed by the two senior authors. Only cases of clearcut lobar or bronchial pneumonia were included, the selection being based on a characteristic history and physical observations and fluoroscopic and roentgenographic evidence of pulmonary consolidation or infiltration. Nasopharyngeal[6] and blood cultures were performed routinely before the injection of penicillin. All patients had tuberculin tests. A blood leukocyte count and a hemoglobin determination were obtained in 87 of the 91 cases. Tests for cold agglutinins and agglutinations of the MG strain of streptococcus[7] were made on patients whose clinical course or laboratory data suggested the diagnosis of primary atypical pneumonia.

The dosage of the repository preparation of penicillin (table 1) was based on previous experience with aqueous penicillin given every twelve hours. A maximum dose of 1,200,000 units was established. This is

TABLE 1.—*Dosage of Repository Type of Penicillin*

Weight of Patient (Lb.)	Units
Up to 10	300,000 (1.0 cc.)
10 to 15	450,000 (1.5 cc.)
15 to 20	600,000 (2.0 cc.)
20 to 30	900,000 (3.0 cc.)
30 and over	1,200,000 (4.0 cc.)

approximately one quarter of the total amount of aqueous penicillin given in discontinuous therapy of pneumonia in adults.[2b] After the vial was thoroughly shaken, the preparation was withdrawn in a dry syringe through a no. 19 needle and injected intramuscularly in the buttocks through a no. 20 needle. No more than 2 cc. was deposited at one site.

For the most part, these children were treated as outpatients, the follow-up consisting of four consecutive daily visits after the day of injection and later visits on the seventh and fourteenth postinjection days. The patients were admitted to the hospital only when the treatment of their disease had to be supplemented by therapeutic measures not available at home, i. e., parenterally given fluids and oxygen. Physical examinations were made on each visit and fluoroscopic examinations on the first, fourth, seventh and fourteenth days. Initial roentgenograms were made, with few exceptions, on the day after injection. Further roentgenograms were made as deemed necessary. At varying intervals after the injection of the repository penicillin and on each return visit up to the seventh day, blood was drawn for assay of serum penicillin levels. Orders for care of the patients consisted of complete bed rest, except for daily dispensary visit, for forty-eight hours with provisions for fluid intake, sedation and diet as indicated. No other antibiotics or chemotherapeutic agents were used at any time.

In the present study 74 patients were Negro and 17 were white. The ages of the patients ranged between 1 month and 12½ years. For the purpose of clinical classification, in patients whose lungs showed a localized homogeneous consolidation the diagnosis was lobar pneumonia, while in those whose lungs showed a diffuse, patchy infiltration the disease was designated bronchopneumonia. The distribution according to age and type of pneumonia is shown in table 2.

TABLE 2.—*Distribution of Patients According to Age and Type of Pneumonia*

Age	Broncho-pneumonia	Lobar Pneumonia	Total
Under 2 years	13	32	45 (49%)
Under 1 year	(4)	(18)	(22) (24%)
Over 2 years	11	35	46 (51%)
Total	24	67	91 (100%)

RESULTS

The results of treatment were classified as good or as failures. The result was considered good when the patient made an uneventful recovery in a reasonable length of time, without complications or use of further specific therapy. This group was further subdivided into very rapid, rapid and slow responses. A very rapid response was one in which the patient was afebrile within twenty-four hours and asymptomatic within four days. The response was considered rapid when the patient was afebrile within forty-eight hours and asymptomatic after four days. Those patients whose fever fell by lysis but who were completely asymptomatic within two weeks and required no further treatment were classified as having a slow response. The patients who did not have an uneventful recovery with a single injection of the repository penicillin preparation were considered failures. There were no deaths in this group of cases. Six patients required hospitalization.

The results of treatment in the 91 cases studied are recorded in table 3.

Of the 87 patients showing good responses, 8 had previously been treated with sulfadiazine and had failed to improve. Six of these had received usually effective doses of sulfadiazine for two to eight days. The other 2 had received sulfadiazine for five day periods, four and five days before admission to the study.

TABLE 3.—*Results of Treatment with Repository Penicillin in 91 Cases*

Results	No. of Cases
Good	87 (96%)
Very rapid (afebrile within 24 hr.)	(65)
Rapid (afebrile within 48 hr.)	(18)
Slow	(4)
Failures	4 (4%)
Total cases	91 (100%)

Four cases were considered failures.

CASE 1.—A Negro infant aged 15 months had a three day history of rhinorrhea, cough, fever and vomiting. The temperature was 105.4 F. (rectal). The child was acutely ill with physical and fluoroscopic evidence of pneumonia of the upper lobe of the right lung. A type 14 pneumococcus was cultured from the nasopharynx. The blood was sterile. Repository penicillin, 600,000 units, was given intramuscularly. The patient was afebrile in fifteen hours and considered well on the seventh

6. Hodes, H. L.; Stifler, W. C.; Walker, E.; McCarty, N., and Shirley, R. G.: The Use of Sulfapyridine in Primary Pneumococcic Pneumonia and in Pneumococcic Pneumonia Associated with Measles. J. Pediat. **14**: 417, 1939.

7. Thomas, L.; Mirick, G. S.; Curnen, E. C.; Ziegler, J. E., Jr., and Herrell, F. L., Jr.: Primary Atypical Pneumonia: Relationship of the Non-Hemolytic Streptococcus to Disease, J. Clin. Investigation **24**: 227, 1945.

day, with a slight residual infiltration in the lower portion of the upper lobe of the right lung. He returned on the fourteenth day with fever and slight cough of one day's duration. His temperature was 104 F. (rectal) and he had bilateral otitis media. The small patch of infiltration in the lower portion of the upper lobe of the right lung was still apparent with fluoroscopic examination. He was treated with aqueous penicillin every twelve hours and made a rapid recovery.

TABLE 4.—*Pathogenic Organisms Recovered from Patients Treated*

Organisms	Nasopharyngeal Culture	Blood Culture
Pneumococcus		
Type 14	17	..
Type 19	10	..
Type 4	8	2
Type 6	8	..
Type 23	8 (81%)	1
Type 1	4	1
Type 15	4	..
All other types	19	1 (Type 17)
Hemolytic Staph. aureus and albus	5	
H. influenzae (negative quelling types A-B with or without pneumococcus)	5	..
H. influenzae B	3	1
Beta hemolytic streptococcus with and without pneumococcus	2	..
B. mesentericus with beta hemolytic streptococcus	1	..
Negative cultures	3	..
Unsatisfactory cultures	5	..

CASE 2.—A Negro boy aged 5 years had measles with cough, fever and rapid breathing of one week's duration. Temperature was 103.2 F. (rectal). Physically and radiologically, he had a pneumonia of the lower lobe of the right lung. A nasopharyngeal culture was negative. Repository penicillin, 1,200,000 units, was given. The patient was afebrile in twenty-one hours, and physical and fluoroscopic examinations of the chest revealed essentially normal conditions by the fourth day. He returned on the thirteenth day with cough and harsh breathing of two days' duration. Bronchopneumonia of the middle and lower lobes of the right lung and of the lower lobe of the left lung was demonstrated physically and radiologically. A nasopharyngeal culture grew alpha streptococci. He was again given 1,200,000 units of the repository penicillin, with subsidence of fever in forty-six hours and an uneventful recovery within one week.

CASE 3.—A Negro boy aged 10 years had fever of four days' duration and chills, cough and pain in the right lower portion of the chest for three days. The temperature was 102.6 F. (rectal). There was physical and fluoroscopic evidence of massive consolidation in the middle third of the right lung, confirmed by roentgen examination. A nasopharyngeal culture grew hemolytic Staphylococcus albus. Blood culture was negative. Sixteen hours after the injection of 1,200,000 units of the repository penicillin the child was afebrile, although he continued to complain of pain in the right side of the chest. Forty-eight hours later he returned with a temperature of 103.2 F. (rectal) and increased pain with respiration. Repeated nasopharyngeal and blood cultures were negative. A second injection of 1,200,000 units of pencillin was given. Twenty-four hours later he was afebrile, and in four days he made a completely uneventful recovery with clearing of the pneumonia apparent clinically and fluoroscopically.

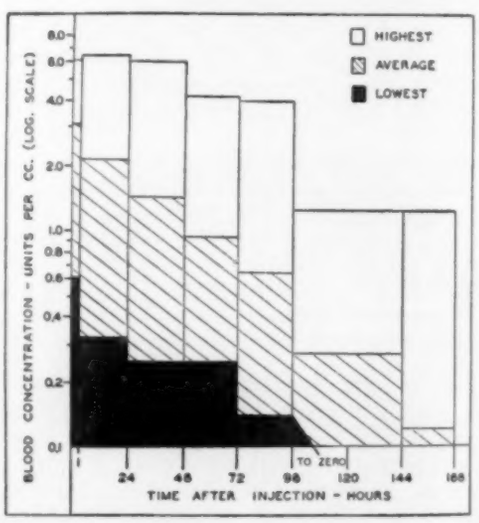
TABLE 5.—*Number of Assays Done at the Various Time Intervals After Injection*

Up to 1 hour	52
1 to 24 hours	88
24 to 48 hours	85
48 to 72 hours	81
72 to 96 hours	79
96 to 144 hours	37
144 to 168 hours	53

CASE 4.—A Negro boy aged 2½ years had had measles three weeks before this illness, which began two days before admission with fever and cough. The respiratory rate was 50 per minute, and breathing was somewhat labored. The temperature was 104 F. (rectal). Pneumonia of the lower lobe of the right lung was demonstrated physically and radiologically. A type 14 pneumococcus was cultured from the nasopharynx. Blood culture was sterile. Fourteen hours after treatment with 900,000 units of repository penicillin the boy was afebrile, and he remained so for one week, although he continued to cough. On the eighth post-treatment day he returned with a temperature of 104 F. (rectal). Pneumonia of the lower lobe of the left lung was now demonstrated radiologically. A type 14 pneumococcus was again cultured from the nasopharynx. After six days of treatment with aqueous penicillin given every twelve hours, he made an uneventful recovery.

A summary of the results of the nasopharyngeal and blood cultures on the 91 patients in the present study is shown in table 4.

Eighty-one per cent of the patients had pneumococci in their nasopharynx. It should be mentioned that 4 patients had two types of pneumococci simultaneously and others had various combinations of pathogenic organisms. Six patients had positive blood cultures, the same organism being present in the nasopharynx in all cases. Nasopharyngeal cultures were taken in 33 of these cases on the seventh and/or fourteenth post-treatment days. On the seventh post-treatment day, cultures from 11 of 18 patients showed the same organisms. On the fourteenth post-treatment day, original organisms were present in cultures from 15 of 24 patients. However, all these patients made uneventful recoveries. Since most of these patients were from the lower economic strata, where overcrowded living conditions prevail, they may have been reinfected by other members of the household.



Summary of 475 serum penicillin levels following a single injection of the repository preparation.

REACTIONS

None of the patients receiving the repository penicillin had any allergic reactions. Local reactions or persistent oleomas were not observed. Twenty-eight of these patients had previously received aqueous penicillin for other illnesses. Eight of the earlier patients have subsequently received aqueous penicillin. None of these patients has shown any sensitivity reactions to intramuscularly given penicillin. Specific studies were not made to determine sensitivity to any component of the

repository penicillin preparation used. In the medical clinics of the Johns Hopkins Hospital over 3,100 injections of the preparation used in this study have been given to adults without any untoward reactions.[8] This observation is in agreement with the low incidence of sensitivity reactions reported by other investigators working with procaine penicillin G in peanut and sesame oils.[9]

SERUM PENICILLIN ASSAYS

The serum penicillin assay method used was that originally described by Rammelkamp[10] with modifications by Eagle.[11] A total of 475 levels was determined (table 5), only 32 of which were done after administration of the two lowest dosages. Since there was a striking similarity among the high, low and average curves in all dosage groups, a composite chart adequately shows the range and average of levels. The levels taken within the first hour were unexpectedly high. Without exception, following any of the dosages used, the serum penicillin level was greater than 0.14 units per cubic centimeter for four days after injection. The apparent inconsistency in these two observations suggested the possibility of delayed excretion of the absorbed penicillin. This has not been the case, however, with procaine penicillin G, which has the same renal clearance as sodium penicillin G.[12] Although the range of levels in all groups was great, the consistency of the rise and fall of serum levels in individual cases was striking. Similar results have been reported by others.[13]

SUMMARY AND CONCLUSIONS

1. The treatment of 91 cases of pneumonia in children by a single injection of a repository preparation of crystalline penicillin G procaine suspended in peanut oil containing 2 per cent aluminum monostearate is reported.

2. A dosage schedule considered suitable for this method of treatment is presented.

3. Good results were obtained in 87 (96 per cent) of the patients treated. Of the 4 patients considered therapeutic failures, 2 recovered uneventfully after a second injection of the repository preparation.

4. Generalized or local sensitivity reactions or persistent oleomas were not observed after the one hundred and eight injections given.

5. Four hundred and seventy-five serum penicillin assays were performed. Unexpectedly high levels were found in the first hour following the injection. Accepted therapeutic levels for pneumococci were universally present for four days.

6. It is concluded that with the dosage schedule outlined, the single injection treatment with a repository penicillin of pneumonia in children is at least as effective as any other schedule of therapy. In outpatient clinic practice, considerations of economy and convenience make this the treatment of choice.

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PHENOSULFAZOLE (DARVISUL) IN ACUTE POLIOMYELITIS

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The purpose of this paper is to report on observations made during the Milwaukee poliomyelitis epidemic of 1948 and on experiences with the chemotherapeutic agent phenosulfazole (darvisul), which is N-(2-thiazolyl)-phenol sulfonamide. Our report is based on the 277 patients with poliomyelitis admitted to South View Hospital for treatment.

Poliomyelitis in the United States had a lower incidence in 1947 than in any previous year since 1942.[1] A total of 10,734 cases were reported over the nation, and the disease occurred in epidemic proportions only in relatively small areas. Milwaukee followed the general pattern in 1947, with only 87 cases reported. Of these, none was paralytic or bulbar; the entire series consisted of nonparalytic cases in which the diagnosis was based on the results of spinal fluid examinations and the presence of muscle spasm.[2] In 1948 the type, severity and magnitude of the epidemic was entirely different. The United States Public Health Service reported a total of 27,680 cases.[3] Epidemics of considerable proportions were reported in the North Central States, North Carolina, California, Ohio and in parts of Texas, New Jersey and Delaware. Milwaukee experienced one of the severest epidemics in its history in 1948, from the standpoint of not only the total number of cases reported but also the number of serious cases and fatalities.

TABLE 1.—*Classification of Poliomyelitis Cases*

Type	Number of Cases	Deaths	Mortality Rate
Nonparalytic	126	0	0
Paralytic	59	0	0
Bulbar	92	44	47.8%

CLASSIFICATION OF EPIDEMIC CASES

The 277 cases of poliomyelitis reported were classified as nonparalytic, paralytic and bulbar types. Many of the cases classified as bulbar had, in addition, evidence of paralysis of the extremities to varying degrees. Incidence by types showed the nonparalytic cases to be greatest in number, while those in which there was evidence of paralysis without bulbar symptoms were the lowest in occurrence. There were 44 deaths in this series, all in cases with some evidence of bulbar involvement. This gave a mortality rate of 47.8 per cent when the bulbar group was considered alone or of 15.9 per cent in the epidemic group as a whole.

The incidence rate increased steadily from early in June 1948 until a peak of 101 cases was reached in September. Although the greatest number of cases was reported in this month, the highest incidence of bulbar cases and the highest mortality rate occurred in August

Dr. Stanton M. Hardy of the Lederle Laboratories Division, American Cyanamid Company, made available the drug used in this study.

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1. Dauer, C. C.: Incidence of Poliomyelitis in 1947, U. S. Pub. Health Rep. **63**: 393 (March 26) 1949.
2. Fox, M. J., and Wallace, H. E.: The Value of the Laboratory in the Diagnosis of Poliomyelitis, Am. J. M. Sc. **217**: 401 (April) 1949.
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(table 2). In that month there were 24 deaths in a group of 39 bulbar cases. This gave a mortality rate of 61.5 per cent for the total number of bulbar cases in August and a rate of 25 per cent for the total group during this month, a much higher rate than for any other month or for the epidemic as a whole. It was during this month that we began to see the fulminating cases which seemed, in comparison with other years, to be characteristic only of the 1948 epidemic and which also resisted any and all types of therapy. Several of these patients entering the hospital expired after a total length of illness of less than forty-eight hours. Obviously, only emergency measures could be used in these cases, and it was frequently impossible to establish and carry out a clearcut selective therapeutic regimen. The number of these fulminating cases increased steadily throughout the month of August and into the early part of September. The severity of these cases was further emphasized by a review of the histories and details of the hospitalization of these patients. The average duration of symptoms in the bulbar patients before admission to the hospital was 3.3 days. Of those who expired, the average duration of life following admission was 2.3 days. The total duration of life from the onset of symptoms to death in 70 per cent of the patients who died in August and September was less than four days. With cases such as these it was

TABLE 2.—*Correlation of Incidence and Mortality Rate*

1948	Total No. of Cases	Nonparalytic	Paralytic	Bulbar	Deaths	Bulbar Mortality Rate, %
July	33	20	8	5	2	40
Aug	96	36	21	39	24	61.5
Sept	101	52	22	27	10	37
Oct	38	14	6	18	7	38.8
Nov	9	4	2	3	1	33

believed that the results of the use of a chemotherapeutic agent could be more clearly evaluated than in previous, less severe epidemics, especially if one placed special emphasis on the change or the lack of change in mortality statistics.

PHENOSULFAZOLE

During this nationwide epidemic of 1948 a new drug was made available for experimental use in human subjects with poliomyelitis. This drug, phenosulfazole, was first synthesized in 1947 and tested for possible antiviral activity. Because it was thought to show promise in that field, Sanders, SubbaRow and Alexander [4] tested it against the poliomyelitis virus in mice, using mouse virus originally isolated in 1940. They found the drug to be consistently effective against the virus in mice. One group of mice was infected intraperitoneally and eighteen to twenty-four hours later given injections of the drug intraperitoneally. A second group of more than one half of the animals survived intraperitoneal infection when given orally a single dose of phenosulfazole. This report was a stimulus for use of the drug on human subjects.

Under as similar experimental conditions as possible, Jungeblut [5] attempted to duplicate this work on animals. His results were entirely different, and he was unable to demonstrate any favorable action of the drug on mouse poliomyelitis.

4. Sanders, M.; SubbaRow, Y., and Alexander, R. C.: An Effective Antiviral Synthetic, Texas Rep. Biol. & Med. **6**: 385 (Aug.) 1948.

5. Jungeblut, C. W.: Failure of Phenosulfazole to Influence the Course of Infection with Murine Poliomyelitis Virus in Mice, Proc. Soc. Exper. Biol. & Med. **70**: 371 (Feb.) 1949.

Reports on the use of phenosulfazole in human beings soon appeared. From the start they gave support to the feeling that this drug was not the specific cure for poliomyelitis that the original experimental work had led us to believe. Van Riper,[6] in reporting on the measures used in the treatment of human poliomyelitis, considered that not enough work had been done on the drug to evaluate it accurately and recommended caution in its use. Stimson [7] also believed that phenosulfazole was neither specific nor curative in its effect in human poliomyelitis. Such was the consensus of the clinical investigators in the early reports on the drug.

In June 1949 Harrington [8] reported on the use of phenosulfazole in 79 of 286 patients in an epidemic in Texas and gave the first favorable impressions on the use of the drug in human subjects. He reported that only 1 of the 79 patients so treated died and that in a three month follow-up of the surviving 78 patients there was only 1 with any demonstrable residual paralysis. In comparing these results with those in 207 nontreated patients, of whom 13 died, he was of the opinion that the drug had a favorable effect on the disease. He suggested further study of phenosulfazole in active poliomyelitis and as a prophylactic measure.

More experimental work has shown that the mouse poliomyelitis virus used in the testing of phenosulfazole is unlike the human poliomyelitis virus.[9] It is now believed that the virus is not a true poliomyelitis virus and that the drug should not be expected to be effective against the human virus on the empiric grounds that it was effective in the mouse. Recently other investigators, using all cases of poliomyelitis admitted within a certain period and strictly alternating cases, attempting to secure controls thereby, reported that phenosulfazole had no effect on the clinical course of the disease.[10]

MATERIAL AND METHODS

The use of phenosulfazole in South View Hospital was begun early in September 1948. The drug was supplied in ampuls for parenteral use and in tablets for oral use. The recommended dosage schedule was 400 mg. per kilogram of body weight per day. This schedule was followed as closely as supplies of the drug on hand would permit. Because of difficulties in keeping adequate supplies of the drug on hand at all times, the recommended optimal dosage schedule could not be maintained in all patients treated with the drug. It was given both parenterally (intravenously) and orally. The variation in total dosage per patient was from 4 to 179 Gm. This wide range was partially explained by the fact that several of the patients herein considered as having been treated with the drug lived only long enough following hospitalization to receive a small amount of it.

Blood counts and urinalyses were done frequently on all patients receiving phenosulfazole to check for evidence of toxic reactions. These studies did not reveal alterations either in blood or urine, and clinical evidences of toxicity were not noted. All the patients selected to receive this drug exhibited signs and symptoms of bulbar poliomyelitis, as it was believed that

6. Van Riper, H. E.: Current Poliomyelitis Research, Delaware State M. J. **21**: 29 (Feb.) 1949.

7. Stimson, P. M.: The Diagnosis and Treatment of Bulbar Poliomyelitis, South. M. J. **42**: 415 (May) 1949.

8. Harrington, P. R.: The Use of Darvisul on Human Subjects, Texas State J. M. **45**: 470 (July) 1949.

9. Wolman, O. J.: Editorial, Quart. Rev. Pediat. **4**: 242 (Aug.) 1949.

10. Schaeffer, M., and Toomey, J. A.: Studies on the Chemotherapy of Virus Infections: Failure of Darvisul (Phenosulfazole) to Affect the Course of Experimental and Clinical Poliomyelitis, J. Pediat. **35**: 444 (Oct.) 1949. Whalton, R. L., and others: The Treatment of Poliomyelitis with Phenosulfazole, ibid. **35**: 447 (Oct.) 1949.

subjects in this group were ideal for the evaluation of phenosulfazole. The primary object was to attempt to significantly reduce the mortality rate from this form of the disease; therefore, no correlation between the frequency of paralytic residuals and the use of the drug was made. No attempt was made to divide the patients into control and treatment groups. However, in the course of the three month period in which the drug was used, 19 patients with bulbar poliomyelitis were seen who did not receive the drug. Although these were not originally intended to serve as a control group, we are using them as such, realizing the dangers and difficulties in doing so in the final evaluation of the therapy.

Prior to the use of phenosulfazole, 135 patients with poliomyelitis had been seen and treated with the usual measures; of these, 29 had expired. Phenosulfazole was given to 29 of the patients treated during the epidemic. Its use was limited to the months of September, October and November, during which period one half (142) of the patients were seen and treated.

TABLE 3.—*Comparison of Results of Therapy*

	Receiving Phenosulfazole			Not Receiving Phenosulfazole		
1948	Cases	Deaths	Mortality	Cases	Deaths	Mortality
Sept.	17	6	35.3%	10	4	40%
Oct.	9	3	33	9	4	44
Nov.	3	1	33	0	0	0
	29	10	34.5%	19	8	42.1%

TABLE 4.—*Severity of Illness Compared in Groups With and Without Phenosulfazole Therapy*

	Receiving Drug	Not Receiving Drug
Ill prior to admission	Average of 2.15 days	Average of 2.25 days
Lived after admission	Average of 62 hr.	Average of 43 hr.
Temperature elevation	Average of 5.9 days	Average of 4.1 days

RESULTS OF THERAPY

In the group of 29 patients treated with phenosulfazole there were 10 deaths, a mortality rate of 34.5 per cent. In the group of 19 patients not receiving the drug as part of their therapy 8 died, a mortality rate of 42.1 per cent. This difference of 7.6 per cent in the two groups appears to be significant. If one takes the number of bulbar patients for the entire epidemic and compares the mortality rate in the group not receiving the drug with that in the treated group, the variation is even greater. In the former, 54 per cent of the patients died; in the latter, only 34.5 per cent.

Because it was believed that these figures did not give the true picture, and because they would lead to conclusions which were at variance with our clinical impressions during the use of the drug, an attempt was made to evaluate the severity of the cases in each group. Our criteria in this respect, other than our clinical impressions of the patients as they were admitted, were the length of illness prior to admission, the length of life following admission in those who died and the length of temperature elevation in those who survived.

In analyzing table 4, it is clear that there was little difference in the length of illness prior to admission in the two groups. This can be interpreted as meaning either that there was little or no difference in the severity of the two groups or that this particular yardstick of severity of disease is not reliable and should not be considered. Of those hospitalized patients who died, there seems to be a significant difference in the length of time they lived following admission. This could be an indication that the drug was a factor in prolonging life in these cases or that these cases were actually not as fulminating or severe in type as those in which patients did not receive the drug. If one assumes that phenosulfazole had an effect on the disease such as prolongation of life of those who died and significant reduction of the mortality rate, it should theoretically follow that the duration of temperature elevation in those patients treated with the drug should be less. However, such was not the case. All these facts certainly cast doubt on our ability to correctly evaluate the effect of this drug, using the available statistical data.

COMMENT

The evaluation of any disease process and of any drug or other type of therapy is difficult at best in the majority of instances. All investigators have emphasized and reemphasized this fact. With special reference to poliomyelitis, they have pointed out the decided variations that occur in its manifestations from year to year, month to month, locality to locality and patient to patient. We are fully cognizant of the limitations of any attempt to evaluate therapy in poliomyelitis.

To use residual muscle paralysis, length of temperature elevation and period of morbidity of the disease as criteria for evaluation of therapy is to ignore the variability of the disease, leading only to false conclusions. Nor will basing an evaluation on the mortality rate of an epidemic as a whole bring out the truth. Only if we consider the effect of a drug or other measure of therapy on the mortality rate within the group of patients with bulbar and spinobulbar forms of poliomyelitis will we be able to approach a correct interpretation. Our past experiences serve to illustrate this point. Had we in Milwaukee ignored these principles during the epidemic of 1947, when there were no fatal cases and no residual paralyses, any new measure used during that time should have been hailed by us as the end in the search for a specific against poliomyelitis. Likewise, at the time of writing we are experiencing another epidemic of poliomyelitis which in the first few months appeared to be much milder. A new preparation on trial was giving the impression of being highly effective in the disease. With alarming suddenness the incidence of spinobulbar cases and the mortality rate have increased many times despite the continued use of the new preparation. Consequently, we are convinced that the only valid basis for evaluation of the drug is a consideration of its effect on the mortality rate within the bulbar group alone.

Evidence that phenosulfazole had little therapeutic effect in poliomyelitis was consistently reported up to the time of Harrington's [8] study in Texas. In analyzing his evidence that the drug was definitely beneficial, we find that there were only 4 patients with bulbar poliomyelitis who had any degree of impairment of vital function in his series. True, these 4 did recover; but it has been our experience that even in a severe epidemic many more than 4 patients considered to have extremely severe infection have recovered without any type of specific therapy. We must therefore conclude that 4 recoveries are statistically inadequate to form a basis for evaluation of the drug.

Our series of 29 patients treated with phenosulfazole is small. A different outcome in 1 or 2 cases would

reverse the statistical data and conclusions. It was the impression of those who observed these patients during treatment that the drug had little to offer in altering the course of the disease. Although the statistics presented reveal a lowering of the mortality rate in the bulbar group by 7.6 per cent, it must be pointed out that the average mortality rate for this type varies from 35 to 55 per cent in severe epidemics. The mortality rate for the entire group of bulbar patients was 47.8 per cent; that for the control group of 19 cases was 42.1 per cent, and that for the treated group of 29 cases was 34.5 per cent. All these figures fall within the expected average for mortality in an epidemic of this type. We conclude that no significance can be attached to the small variation which occurred between results in the control and treated groups. Application of the chi square test (table 5) reveals that the difference in the mortality rate is not statistically significant.

When an investigator is able to show that the mortality rate in severe epidemics is consistently reduced from the expected range of 10 per cent or less in the patients with bulbar and spinobulbar manifestations during the period of use of a new type of therapy, that particular drug or measure will have real significance.

TABLE 5.—*Results of Treatment of Patients Who Had Bulbar Poliomyelitis with Phenosulfazole**

	No. Died	No. Lived	Total
No drug	8 (*a*)	11 (*b*)	19 (*r*)
Received phenosulfazole	10 (*c*)	19 (*d*)	29 (*s*)
Total	18 (*u*)	30 (*v*)	48 (*T*)

* From this table it is possible to calculate χ^2 by the formula

$$\chi^2 = \frac{(ad - bc)^2}{u \cdot v \cdot r \cdot s} \times T$$

This reveals that $\chi^2 = 0.3$, which indicates that this difference in mortality between the treated and untreated groups could have occurred by chance at least 50 per cent of the time.

Inasmuch as phenosulfazole had no significant effect in lowering the mortality rate, we believe that there is little justification for continuing its use in poliomyelitis.

SUMMARY AND CONCLUSIONS

1. Milwaukee followed the national pattern in 1948 with a severe epidemic of 277 cases of poliomyelitis. There were 92 cases (33.2 per cent) of the bulbar and spinobulbar type, of which 44 (47.8 per cent) were fatal.

2. The incidence of poliomyelitis gradually rose throughout July and August to a peak in September, with the most severe cases and the most deaths occurring in August.

3. Treatment with phenosulfazole (darvisul), which is N-(2-thiazolyl)-phenol sulfonamide, was begun early in September as the result of favorable reports on use of this drug in mouse poliomyelitis. Twenty-nine patients who had bulbar and spinobulbar forms of poliomyelitis received the drug, and the mortality rate was 34.5 per cent. During the same period 19 patients did not receive the drug and showed a mortality rate of 42.1 per cent. There appeared to be no alteration in the length of temperature elevation or the length of hospitalization in the group receiving the drug, and instances of drug toxicity were not noted.

4. It was our clinical impression that phenosulfazole offered little in the treatment of poliomyelitis. This impression is substantiated by the facts that the mortality rate in both the treated and untreated groups fell within the expected range for a severe epidemic and that the chi square test showed this difference in mortality of the two groups to be not statistically significant.

5. We believe that further evaluation of phenosulfazole or any other type of therapy in poliomyelitis should be based on its ability to lower the mortality rate significantly for patients in the bulbar and spinobulbar groups only.

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AUREOMYCIN IN THE TREATMENT OF POLIOMYELITIS

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In 1948 Wong and Cox [1] reported that aureomycin showed marked therapeutic activity for mice infected with psittacosis or with lymphogranuloma venereum viruses but that the drug was without effect against a B strain of influenza, canine distemper, rabies, Newcastle disease, Venezuelan equine encephalomyelitis and the MEF-1 strain of poliomyelitis. Largely on the basis of that report it has generally been assumed that aureomycin has no value in the treatment of human poliomyelitis. However, to the best of our knowledge no report has appeared on the clinical application of the drug, a subject of great interest to practicing physicians. It seemed to us worth while, therefore, to investigate the value of the drug in the early stages of the disease and to determine, if possible, whether it would have any influence on the clinical course. An investigation undertaken during the recent poliomyelitis epidemic formed the basis of this report.

MATERIAL

Because of the great variability in the clinical picture of poliomyelitis it seemed best to limit the study to the nonparalytic form of the disease and to compare the clinical course of aureomycin-treated patients with that in untreated controls. Accordingly, 38 nonparalytic patients admitted to one ward of the Willard Parker Hospital between July 22 and Aug. 31, 1949, were treated with aureomycin, while 66 similar patients admitted during this period in two other wards did not receive the drug and served as controls.

Clinical Aspects.—The aureomycin-treated patients and the controls were similar in all essential respects. The similarity in the age distribution of the two groups is shown in table 1. The duration of the illness prior to the patients' admission to the hospital was similar in the two groups. As will be seen from table 2, 32 of the treated patients and 53 of the controls were admitted during the first three days of their illness. The clinical picture on the patients' admission to the hospital was essentially the same in both groups. The more common symptoms and signs are enumerated in table 3.

Spinal Fluid.—There was no significant difference in the spinal fluid findings in the two groups. In 3 of the

From the Willard Parker Hospital.

1. Wong, S. C., and Cox, H. R.: Action of Aureomycin Against Experimental Rickettsial and Viral Infections, Ann. New York Acad. Sc. 51: 290 (Nov. 30) 1948.

aureomycin-treated patients and in 11 of the controls the spinal fluid was normal. Pleocytosis was noted in 35 of the treated patients and in 55 of the controls.

Method of Treatment.—In the treated patients oral administration of aureomycin was instituted on the day of their admission. During the first four weeks of the study the daily dosage schedule of the drug was 2 Gm. for children up to 4 years of age, 4 Gm. for those 5 to 16 years and 6 Gm. for patients above that age. Treatment was continued for five days. During the remaining two weeks of the study, the schedule was modified so that the infants up to 2 years of age received only from 1 to 1.5 Gm. per day. In addition, during those two weeks the treatment in all patients was carried on for seven days. As a rule, the drug was well tolerated, with the exception of 13 instances in which there were transitory episodes of nausea or vomiting.

RESULTS

The criteria selected for the purpose of evaluating the results of the treatment with aureomycin were the duration of the fever from the time of onset and the subsequent development of paresis or paralysis. Since antispastic measures were used in most of the cases in both groups, improvement in spasm could not necessarily be ascribed to aureomycin when that drug was employed. It will be seen from table 4 that the duration of the fever was similar in the two groups. In 2 of the patients treated with aureomycin extensive paralysis subsequently developed. This complication did not occur in any of the control cases.

TABLE 1.—*Age Distribution*

Age in Years	No. of Aureomycin-Treated Patients	No. of Controls
Under 1	0	0
1-10	22	43
11-20	14	12
21-30	2	8
31-40	0	3
Total	38	66

TABLE 2.—*Duration of Illness Before Admission to the Hospital*

Days of Illness	No. of Aureomycin-Treated Patients	No. of Controls
1	4	10
2	13	27
3	15	16
4	3	7
5	1	3
6	0	1
7	2	0
8	0	2
Total	38	66

COMMENT

In this group of cases of nonparalytic poliomyelitis the early use of aureomycin in relatively large doses did not appear to affect favorably the clinical course of the disease. The duration of fever was about as long in the aureomycin-treated patients as in the controls. Furthermore, paralysis developed in 2 of the treated patients but not in the controls. However, the occurrence of paralysis in one and not in the other group may be regarded as fortuitous. As mentioned previously, it was not possible to evaluate the effect of aureomycin on muscle spasm because of the employment in most cases of various antispastic measures.

TABLE 3.—*Symptoms and Signs on Admission to the Hospital*

Symptoms and Signs	No. of Aureomycin-Treated Patients	No. of Controls
Headache	22	30
Vomiting	5	15
Fever	25	34
Pain	13	16
Sore throat	7	6
Meningeal signs	19	35

TABLE 4.—*Duration of Fever from Time of Onset*

Days of Fever	No. of Aureomycin-Treated Patients	No. of Controls
1	0	0
2	1	1
3	6	10
4	7	12
5	9	14
6	5	12
7	4	7
8	4	5
9	2	1
10	0	2
11	0	2
Total	38	66

This study would seem to confirm the experimental work of Wong and Cox,[1] although it is possible that in some of our cases the illness might have been caused by an infectious agent other than the virus of poliomyelitis. However, it is well recognized that during epidemics of poliomyelitis most cases of nonparalytic illness are instances of that disease. Furthermore, lack of diagnostic specificity applies equally to the aureomycin-treated and the control groups.

In this connection it is also important to mention that the use of aureomycin in a group of 20 paralytic patients not included in this study failed to produce any striking change in the clinical picture.

SUMMARY

Thirty-eight patients with nonparalytic poliomyelitis were treated with aureomycin during the early phase of the disease, while 66 patients did not receive the drug and served as controls. The aureomycin-treated patients and the controls were admitted during the same period and were similar in all essential respects. The method of treatment and dosage have been described. The clinical results were about the same in the treated and the control patients. The development of paralysis in 2 of the treated patients but in none of the controls was regarded as fortuitous. In this study the use of aureomycin early in the disease did not appear to affect favorably the clinical course of poliomyelitis.

TABLE FOR ROUTINE ANGIOCARDIOGRAPHY

Synchronous Serial Roentgenography in Two Planes at Right Angles

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With the technic at present commonly used in angiocardiography there may be difficulty in the localization of the contrast medium in the heart as well as in identification of the various chambers of the heart and estimation of their volume and configuration. To overcome these difficulties specific technical arrangements have been necessary.

From the commencement of the injection and until the contrast medium has passed through the heart, a series of roentgenograms must be taken, from which the various cavities of the heart and the vessels can be assessed. The intervals between exposures

Fig. 1.—The table has one horizontal and one vertical cassette magazine that travel synchronously to the side of and beneath (respectively) the patient. One x-ray tube is placed above and another at the side of the patient. When in position the cassettes release exposures simultaneously from the two tubes. The next two cassettes now move to exposure position and release the following exposures at intervals of 0.8 second. Consequently the table permits ten pictures to be taken in one ray direction and ten pictures to be taken synchronously at right angles to those mentioned. All this takes place in the course of five to ten seconds.

should be chosen so that the passage of the contrast medium through the different chambers of the heart may be followed. Robb and Steinberg as well as other investigators have worked with roentgenography in one projection only. If the examination demands supplementary views with further projections it is necessary to repeat the entire examination after repeated injection of contrast medium. This makes the procedure laborious and time-consuming and complicates the interpretation of the roentgenograms. Furthermore, it is virtually impossible to obtain a new series of roentgenograms in the identical phases of the cardiac and respiratory cycles and with an identical contrast filling of the various cavities of the heart as in the first series. At Norrtulls Hospital synchronous exposure in two projections at right angles is made in the roentgenologic determination of cardiac volume. Thus, frontal and lateral views of

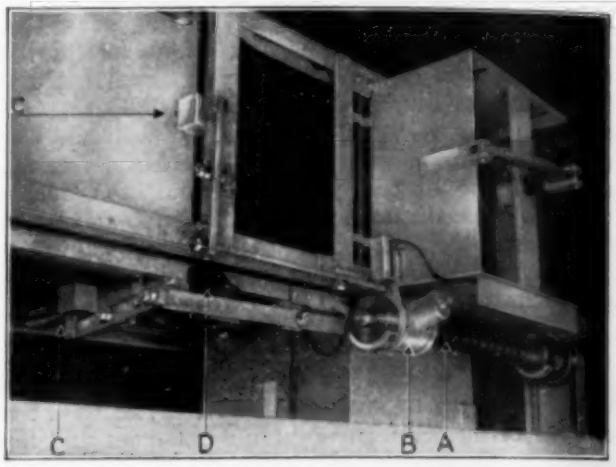

Fig. 2.—The back of the table with the feeding mechanism. Externally an electric motor drives (*A*) "a double helical screw" by means of a cone belt. A knife bolt (*B*) runs along the screw and is provided with two drivers, which simultaneously feed cassettes from the horizontal and vertical magazines to the exposure site. The knife bolt also adjusts the check blocks (*C*) by means of levers, thus preventing the cassettes from being thrown past the exposure fields. Furthermore, one of the levers closes the high tension x-ray circuit synchronously by means of a microswitch (*D*). The contact is so arranged that when the cassette has been thrown into the exposure position the actual exposure will be delayed for 0.2 second. This is in order to insure that the cassette is absolutely stationary during the exposure.

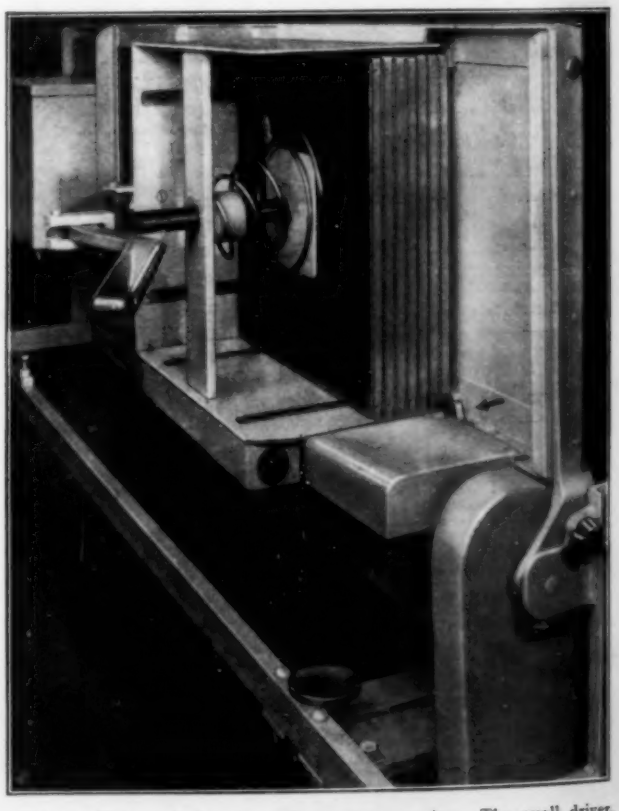

Fig. 3.—The vertical unexposed cassette magazine. The small driver, indicated by an arrow, brings cassette after cassette continuously forward into position.

the heart in the same phase of the respiratory and the heart cycle are obtained. An adaptation of this technic to angiocardiography has been our aim.

In cooperation with the Swedish X-Ray Company Georg Schönander, O. Axén has constructed a special

From the Pediatric Clinic of the Karolinska Institute at Norrtulls Hospital (Director, Professor A. Wallgren).

table for angiocardiography (figs. 1, 2, 3 and 4). The desired values of kilovoltage, milliamperage and time are adjusted on the control unit of the x-ray apparatus before the examination. As soon as injection of the contrast medium has been completed, the motor on the examination table is started by means of a switch. The transfer of the cassettes from the magazines to the exposure fields is made automatically, and at the same time the x-ray tubes are energized. When the last cassette has entered the exposure field and has been exposed, a small microcontact coupled to the main relay breaks the high tension circuit; this contact is situated in the horizontal cassette magazine. An electrocardiogram is made throughout the operation in order to fix precisely the time between the exposures and, still more important, to register the heart phases in which the exposures have been made. The exposures are registered on the upper edge of the electrocardiographic paper (fig. 5).

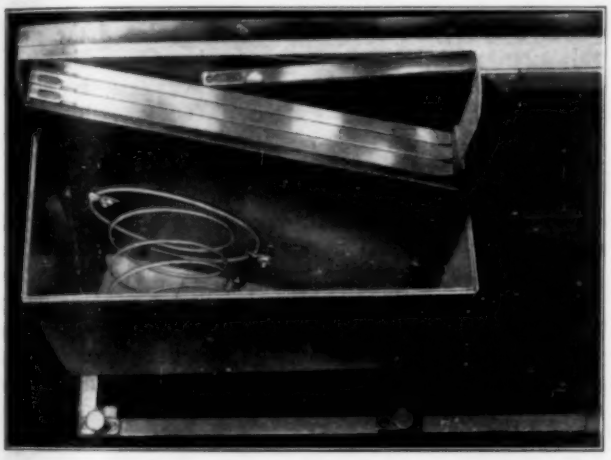

Fig. 4.—The exposed cassette-collecting magazine. Three cassettes have come into the magazine, and a fourth cassette is about to arrive.

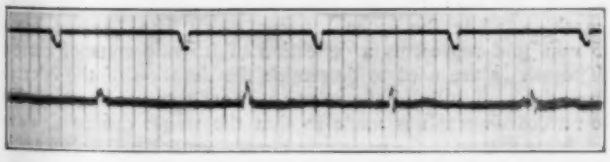

Fig. 5.—Relationship of each exposure to the heart cycle.

In order to permit an accurate determination of the time required for passage of the contrast medium through the heart an appropriate number of cassettes must be chosen so that both at the beginning and at the termination of the series there is a picture of the heart when empty. The table permits at most ten pictures to be taken synchronously in two planes at right angles in five to ten seconds (the speed can be varied).

Direct roentgenography is definitely superior to the indirect method, that is, photography of the fluoroscopic screen. All details stand out more sharply in the roentgenogram. The necessary roentgen effect per exposure is lower than in the indirect method. This must be taken into consideration, as angiocardiography, as aforementioned, demands a number of pictures if the method is to afford the best possible result. In the present construction 12 by 12 inch (30 by 30 cm.) film cassettes are used with the apparatus.

The table has been in routine use for more than three years at Norrtulls Hospital. It has also been used in thoracic aortography (Jönsson, Hanson and Karnell, 1948,[1] and Brodén and associates,[2] 1949). The apparatus has worked well and has been reliable.

The patient is examined in the supine position. This is the only position possible when children are being examined, and in the examination of adults it might

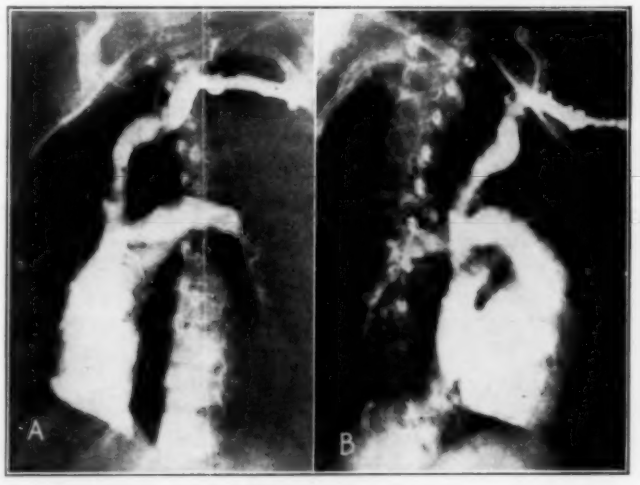

Fig. 6.—Duplex pictures: *A*, the picture on the left is taken in the left anterior oblique position. The vena cava superior is filled with contrast medium, as is the right side of the heart and the pulmonary artery, but it is impossible to determine whether the medium is in both the auricle and the ventricle or in the latter only. *B*, the picture taken simultaneously in the right anterior oblique position gives a free projection of the auricle and the ventricle and affords a good view of the conus and the pulmonary artery.

be an improvement over the sitting position, generally used hitherto. The patient may be secured in position effectively, and the denudation of the cubital vein and the injection of the contrast medium may be performed as conveniently as when the patient is on the operating table.

Figures 6, 7, 8 and 9 show how the pair of pictures complement each other.

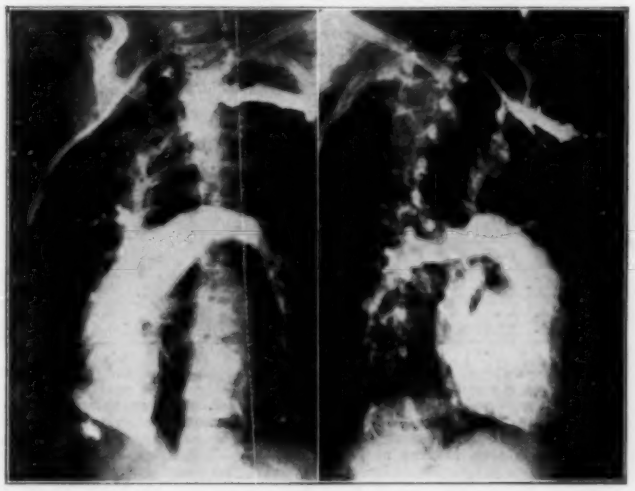

Fig. 7.—Duplex pictures 0.8 second later than figure 6. The contrast medium has passed farther out in the pulmonary arteries, but there is as yet no contrast filling of the left side of the heart.

COMMENT

Angiocardiography with synchronous exposures in two projections at right angles renders possible a three-dimensional appreciation of the capacity and configuration of the separate chambers of the heart. This

1. Jönsson, G. B.; Hanson, H. E., and Karnell, J.: Visualization of Patent Ductus Arteriosus Botalli by Means of Thoracic Aortography, Acta radiol. **30**: 81, 1948.
2. Brodén, B.; Hanson, H. E., and Karnell, J.: Thoracic Aortography, Acta radiol. **29**: 181, 1948.

method is of aid in the establishment of normal standards in the living subject, and it affords increased opportunities for detection of abnormalities in the size or shape of the cavities of the heart and of the great thoracic vessels. Moreover, taking the roentgenograms in two different projections facilitates more nearly precise identification of each anatomic portion of the heart. Serial photography gives a concept of the dynamics of the heart; the dye can be accurately localized in the heart, and the changes in capacity of the chambers during the heart cycle can be estimated better.

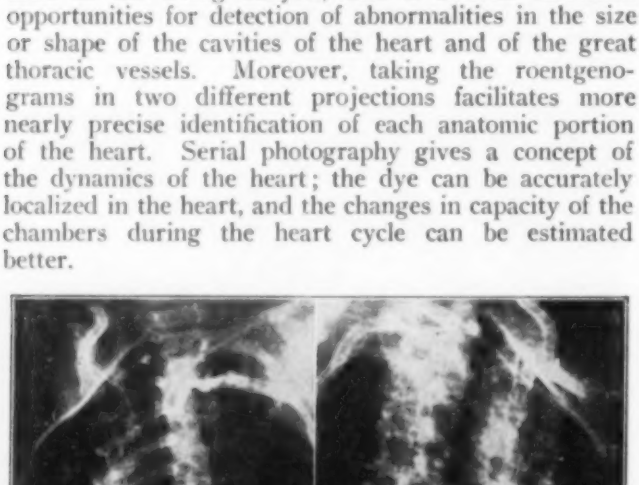

Fig 8.—Duplex pictures 1.6 seconds later than figure 7. The contrast medium is now in the pulmonary veins, which converge toward the contrast-filled left auricle.

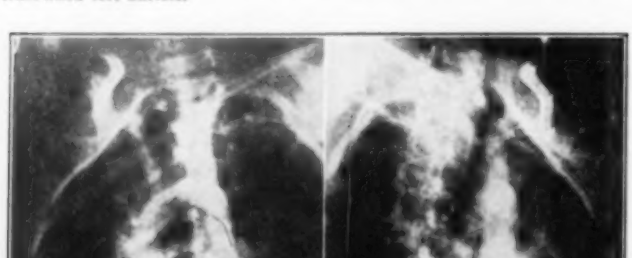

Fig. 9.—Duplex pictures 1.6 seconds later than figure 8. The contrast medium has completely passed over to the left side of the heart, which now is heavily outlined, as are the aorta and the outgoing great arteries. In the view taken at right angles to the projection, the left auricle and ventricle are to be seen well separated by the coronary sulcus, and the aorta also is seen in free projection.

SUMMARY

In order to obtain, as far as is possible, a three-dimensional conception of the chambers of the heart, and in order to obtain, to the furthest extent possible, free projections of these chambers in relation to each other, angiocardiography has been performed by means of synchronized serial roentgenograms in two planes at right angles.

A special table for angiocardiography has been constructed, permitting ten pictures to be taken in one ray direction and ten pictures at right angles to be taken synchronously in the course of five to ten seconds.

Special Article

VALUE OF THE ELECTROCARDIOGRAM IN CLINICAL PRACTICE

J. BAILEY CARTER, M.D.
Chicago

From time to time there will be published in THE JOURNAL *review articles intended for the general practitioner. Dr. Carter's article is one of this series.*—ED.

Electrocardiography has given the clinician the confidence of knowledge in diagnosis. It has made prognosis more exact. It has rationalized therapy. Although the cardiovascular examination is incomplete without the aid of an electrocardiogram, an attempt to extract more information than it is able to furnish often leads to confusion.

THE INSTRUMENT

Since 1903, when Einthoven[1] introduced the string galvanometer, electrocardiographs have been improved and simplified. Instruments of various types are available. The string galvanometer is still a good instrument. Instead of weighing 500 pounds (227 Kg.) many now weigh about 30 pounds (13.6 Kg.) (fig. 1). In this type of electrocardiograph, the minute heart action electric currents cause deflections of a gold-plated quartz fiber stretched in a strong magnetic field. The projected shadow of this fiber, highly magnified, moves across an illuminated field and falls on a continuously moving strip of film. Thus the string deflections are photographed continuously. Horizontal lines to measure the amplitude of excursion of the string shadow and vertical lines to measure time intervals are photographed on the film.

Time lines in the finished record are 1 mm. apart and represent 0.04 second; every fifth (heavy) line represents 0.20 second. The horizontal lines are 1 mm. apart, equivalent to 0.1 millivolt of current after proper standardization of the machine, while the space between every fifth (heavy) line is 5 mm. and represents a deflection of 0.5 millivolts of current. These lines are used to determine the duration of the intervals and the amplitude of the waves of an electrocardiogram. The electrocardiograph is made so that the string can be tightened or loosened, with the patient in circuit, until 1 millivolt potential will cause 1 cm. (10 mm.) excursion of the galvanometer string. After calibration it is a measure of the electromotive force produced by the heart. This standardization (calibration) of the instrument (for each lead) is universally accepted and permits uniformity and ready comparison of all electrocardiograms. The foregoing is the general procedure for standardizing a string galvanometer electrocardiograph. The exact procedure, based on these principles, must be learned for the particular machine on which the work is done.

PHYSIOLOGIC BASIS OF ELECTROCARDIOGRAPHY

The successive contractions of the auricles and ventricles are due to the passage of an excitation (depolarization) wave which precedes, by a brief interval, the contraction of the heart chambers so stimulated. The impulse originates in the pacemaker of the heart (the sinoauricular node) and is conducted by a peculiarly differentiated muscle tissue comprising the sinoauricular node, the auriculoventricular node, the

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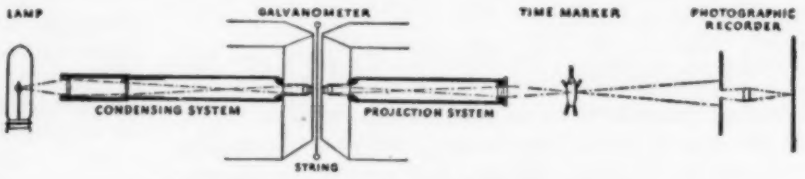
Illustrations are from Carter, J. B.: The Fundamentals of Electrocardiographic Interpretation, Ed. 3, Springfield, Ill., Charles C Thomas, Publisher, to be published.

1. Einthoven, W.: Ein neues Galvanometer, Ann. d. Phys. u. Chem. 12: 1059, 1903.

bundle of His and its right and left branches with their aborizations (fig. 2 *A*). From the sinoauricular node the wave spreads over the auricles in all directions much the same as waves spread when a pebble is dropped into water (fig. 2 *B*). On reaching the junctional tissue the impulse spreads to the ventricles through the auriculoventricular node and bundle of His (fig. 2 *D* and *E*). A slight delay occurs in passing this junction, but once it is across the wave spreads swiftly over the common bundle, its right and left branches, and on to the Purkinje network lining the interior surface of the ventricles (fig. 2 *F*). The bulk of the ventricular musculature is then excited by a slower passage of the wave from the interior to the exterior surface of the ventricles.



Schematic diagram of the Electrocardiograph

Fig. 1.—The string galvanometer type of instrument.

THE PROCESS OF ELECTROCARDIOGRAPHY

An electrocardiogram is a photograph of the oscillations of the galvanometer string. Minute changes of electric potential enter from electrodes attached to the body surface to deflect the string. An active or injured muscle (not resting or dead) produces an electric potential. When a patient is recumbent and in absolute repose, the skeletal muscles are inactive and the main electric potential comes from the muscles of the heart. An electrocardiogram records the site of impulse initiation, its spread and retreat, in the sense of depolarization and repolarization. An electrocardiogram is an accurate graph of the electrical activity of the heart. The form of the record varies with the lead employed. The waves (deflections or complexes) of the tracing are caused by the movement of the string shadow. These waves have had certain letters attached to them. The letters were arbitrarily taken, by Einthoven, from the middle of the alphabet. P wave, QRS complex and T wave are generally employed and are universally accepted. In deference to Einthoven, EKG is the standard abbreviation for an electrocardiogram. The duration of a wave, complex or interval is measured from its convex curvature. The amplitude of a positive deflection is measured from the top of the base (isoelectric) line, that of a negative deflection from the bottom of the base line (fig. 3).

Electrocardiography is concerned with only two cardiac functions, i. e., impulse production and impulse transmission. It registers anatomic change and is of service in the study of heart disease only when these two functions are disturbed. It often reveals information about the integrity of the heart not obtainable by any other method of examination. It does not record the force of the heart beat.

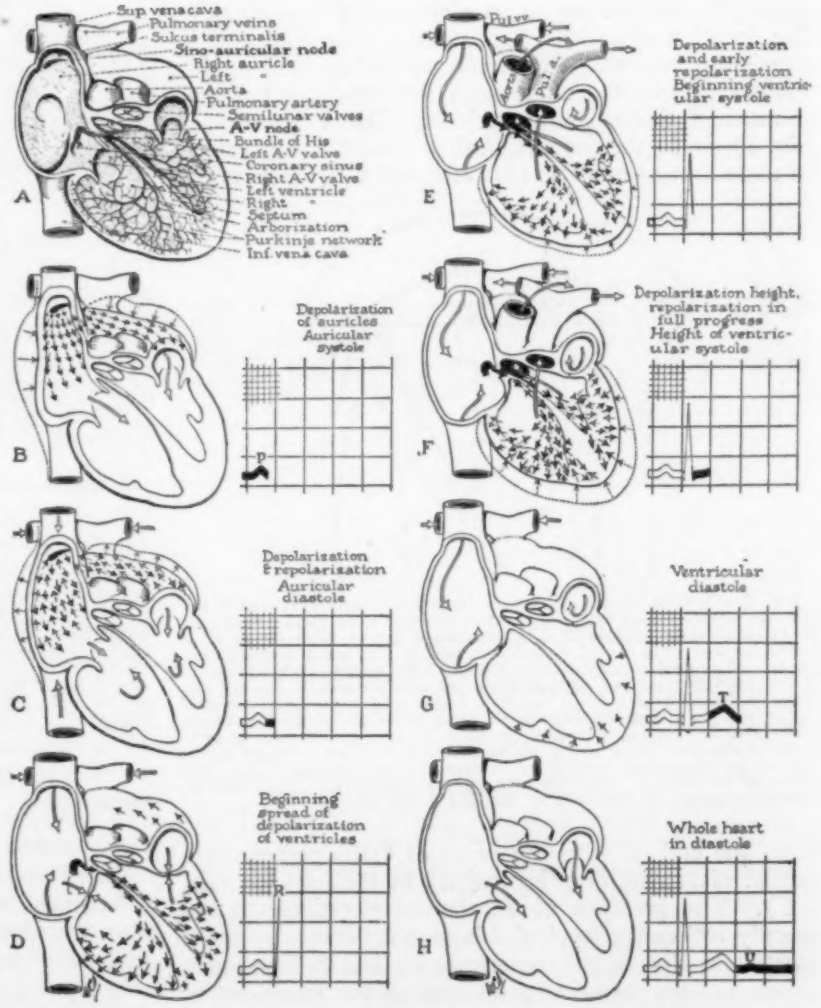


Fig. 2.—Various stages of the cardiac cycle with the associated electrocardiographic record. Note that electrical events precede by a brief interval the mechanical events of the cardiac cycle: *A*, diagrammatic sketch of the conduction system of the heart. *B*, the heart at the stage of auricular systole. The electrical excitation is spreading throughout the auricular musculature. This is the stage of depolarization of the auricles. At this stage the P wave is inscribed. *C*, the heart during the stage of auricular relaxation. Depolarization of the auricles is in progress but repolarization has begun. The finale of auricular systole is represented graphically by the space in black extending from the end of the P wave to the beginning of the QRS complex. *D*, the heart at the beginning of ventricular excitation. This is the initial stage of depolarization of the ventricles. The graph extends from the beginning of the QRS complex to the peak of R. *E*, the heart at the onset of ventricular systole. The excitation wave is spreading through the ventricles; depolarization is in progress. The graph extends from the tip of R nearly all the way down S. *F*, the heart is the height of ventricular systole; depolarization continues, but repolarization is also in full progress. *G*, the stage of relaxation of the ventricles; the stage of repolarization of the ventricles, the process of depolarization having been completed. *H*, the whole heart is in diastole. Except for a U wave, which is occasionally present, the graph does not vary from the isoelectric base line.

The electrocardiogram gives no information regarding the cause of the impairment of myocardial function except in the case of infarction, the effect of digitalis and certain congenital lesion. Early infarction often causes diagnostic changes in the limb leads. Chest leads may aid in the diagnosis. The typically progressive changes seen in serial curves are pathonomonic. Serial curves provide the most reliable diagnostic criteria of an active myocardial process. The record does not indicate the type of involvement (organic, toxic or ischemic) but detects new and reveals old myocardial injury. The degree of abnormality does not parallel the amount of

cardiac damage. The heart, like the brain, has many silent areas. Extensive injury of these may lead to little or no change in the graph. A localized lesion involving the conduction system may give rise to extensive alterations. Medication with digitalis may cause any type of deformity. A "digitalis T wave" does not exist. Changes from digitalis intoxication may persist for twenty-one days.

ORIGIN OF HEART CURRENTS

The electrocardiogram pictures the time relations of the invasion (depolarization) and retreat (repolarization) in the heart (fig. 2). The P wave (fig. 2 *B*) represents the stage of invasion of the auricles. The QRS complex (fig. 2 *D*, *E* and *F*) represents the stage of invasion of the ventricles. The T wave (fig. 2 *G*) represents the retreat of activity from the ventricles. The duration of each of these waves gives the time of invasion or retreat. The amplitude and contour of the waves represent the unbalanced stresses from moment to moment during these periods. The P-R interval (fig. 3) marks the conduction time from the sinoauricular node to the ventricles (fig. 2, *B* and *C*). The period

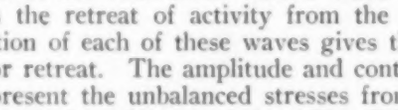


Fig. 3.—Relation of the differences in potential developed within the heart to those obtained by the three electrocardiographic leads. Each side of the equilateral triangle *R L F* represents one of these leads; *R L* represents lead 1, *R F* lead 2, and *L F* lead 3. An arrow (representing the axis of an electromotive force in the body) drawn through the midpoint of this triangle makes an optional angle (α) with the side *R L*. On this arrow, a line *p q* of optional length is taken, to represent such an axis within the heart, and its distribution along the sides of the equilateral triangle *R L F* is represented by $p_1 q_1$ $p_2 q_2$ $p_3 q_3$. The line $p_2 q_2$ is equal to the lines $p_1 q_1$ and $p_3 q_3$ taken together. The direction of the arrows ($\rightarrow$) represents the flow of "current" in the various leads. The direction of flow in completing the circuit outside the body, through the galvanometer, is indicated by the long dotted arrows.

from the end of P to the onset of QRS represents a period of retreat (repolarization) in the auricles (fig. 2 *C*). The presence of unbalanced electrical stresses usually makes the level of this period deviate from the isoelectric, that is, the isopotential. The S-T segment represents the period of possession of the ventricles by the depolarized state. Some repolarization starts at this time; hence, small deviations of level during this period occur normally (fig. 2 *F*). Large deviations from the isoelectric indicate that large regions of the ventricle fail to contribute their usual electric stresses because of injured muscle. The S-T interval includes the end of invasion (depolarization) and the period of retreat (repolarization) of the ventricular musculature. The T wave (fig. 1 *G*) represents ventricular repolarization, the finale of ventricular systole.

ELECTROCARDIOGRAPHIC TECHNIC

An electrocardiographic lead is the connection of any two parts of the body by electrodes and wires to the recording instrument.[2] A special electrode jelly is used to make proper contact. The standard (limb) leads are called lead 1, lead 2 and lead 3. The electrodes are connected to the extremities of the patient, who should be recumbent and completely relaxed. Amputation or disarticulation requires that the electrode be attached nearer or to a shoulder or the left hip. Lead 1 connects the right arm to one end of the galvanometer string and the left arm to the other end (fig. 3). Lead 2 consists of a similar arrangement, the left leg being substituted for the left arm; in lead 3 the left arm is substituted for the right arm, the left leg continuing to be the lower contact. The galvanometer is built so that an upward (positive) deflection appears in these leads of the electrocardiogram (in lead 1, when the right arm is negative and the left arm is relatively positive; in lead 2, when the right arm is negative and the left leg is relatively positive, and in lead 3, when the left arm is negative and the left leg is relatively positive). These three lead points constitute the vertexes of a triangle which is essentially equilateral (fig. 4). Electrically and geometrically, lead 2 is equal to the sum of leads 1 and 3. This fact, often ignored, is useful for checking errors in labeling and mounting.

ARTEFACTS

Great care is necessary to avoid artefacts in records. The most common cause is 60 cycle interference or muscle tremor. Artefacts may be due to unclean or improperly applied electrodes, extraneous currents, inaccurate standardization, poor illumination, faulty action of time marker or camera and defective development of records. Much care must be used to avoid interpreting artefacts as indicating myocardial disease.

INDICATIONS FOR ELECTROCARDIOGRAPHIC STUDY

Indications for an electrocardiogram include: (1) substernal, precordial or upper abdominal pain or other cardiovascular symptoms; (2) coronary occlusion (for diagnosis and management); (3) complete appraisal of cardiac status; (4) rheumatic fever and other childhood diseases; (5) repeated bradycardia or persistent tachycardia; (6) irregular or intermittent pulse; (7) digitalis medication; (8) major surgery; (9) confinement; (10) age beyond 50 years; (11) convalescence from serious illness, and (12) cardiac neuroses.

METHOD FOR READING ELECTROCARDIOGRAMS

Strict adherence to some routine for interpreting electrocardiograms prevents the clinician from overlooking significant changes in the record being examined. The following routine is recommended:

1. Determine the rate of the heart.[3]
2. Determine the axis deviation present.
3. Detect and study irregularities of rhythm.
4. Look for abnormalities of the P wave.
5. Determine the length of the P-R interval.
6. Examine for abnormalities of the QRS complex.
7. Determine the length of the QRS interval.
8. Detect and study changes in the S-T interval.

2. At first the three points selected to form the equilateral (Einthoven) triangle were the right and left shoulder and the abdomen. Since it was difficult to make contact at these points, the right and left forearm and lower part of the left leg were tried and found to serve quite well.

3. If the record is properly placed in a standard mount, one simply counts the number of cardiac cycles visible through the opening for each lead and multiplies the average total by the factor 10, to get the rate per minute. If unmounted, place a 6 inch (15.2 cm.) ruler below the record, count the heart cycles occurring therein and multiply by 10 to get the rate, or mark on a cardboard the length of thirty large squares of the graph on which the tracing is recorded, count the number of cardiac cycles occurring therein and multiply by 10 to get the heart rate per minute.

9. Observe all abnormalities of the T wave.
10. Summarize the abnormal graphic observations.
11. Discuss interpretation of abnormalities.
12. Draw conservative clinical conclusions.

The examiner notes and records graphic variations from the norm. He interprets these abnormalities and discusses their possible significance. The clinician, by accurate, logical thinking, after adequate history taking, careful examination and essential laboratory aid, is the only one who can make a diagnosis.

AXIS DEVIATION

The projection on the plane of the chest of the resultant of the distributed electric potentials developed by the heart at any instant is designated as the electrical axis of the electrocardiogram at that instant. The resultant and its projection are vector quantities, i. e., they have magnitude and direction. The mean electric axis of the QRS complex (depolarization of ventricles) is the electrical axis at the peak of the R wave and is the only one of interest for ordinary clinical use. It may be determined from Bayley's Triaxial Reference System, Dieuaide's chart or Einthoven's triangle. This mean electrical axis has the direction of the resultant of all the potentials developed by the component muscle fibers of the heart at the instant of the R spike. During the cardiac potential cycle the electrical axis constantly changes direction and hence any calculated axis corresponds to the direction at a given instant of time. The direction of the resultant electrical axis of the heart varies within wider limits (normally and abnormally) than does the anatomic axis.

The position of the heart within the chest influences the graphic record. The normal electrical axis lies between 0 and plus 90 of Einthoven's triangle (fig. 4). If the angle is minus (above the horizontal) there is left axis deviation (fig. 5); if beyond plus 90 (to the right of the vertical) there is right axis deviation (fig. 6). Counterclockwise rotation about its long axis (viewed from the apex) or around its anteroposterior axis (viewed from the front) causes left axis deviation; clockwise rotation, in either instance, produces right axis deviation.

LEFT AXIS DEVIATION

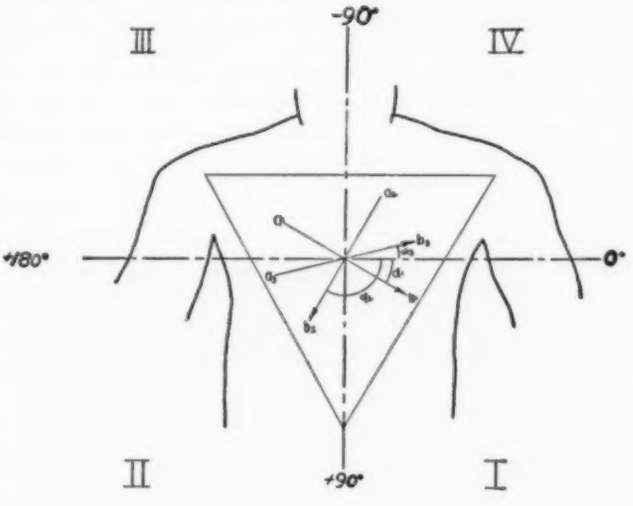
Displacement of the heart upward and leftward to a transverse position by a high diaphragm (squat heart) may cause left axis deviation of a normal heart. This often occurs in a short, fat (hypersthenic) person with a broad chest or big abdomen, during pregnancy, with ascites or on full expiration. Inversion of the QRS complex (due to a deep S or Q wave) in lead 3 indicates left axis deviation. A deep Q wave in lead 3 (Pardee) often signifies coronary disease but as an isolated observation is an undependable indicator of old infarction. The deep Q wave (lead 3) of pregnancy and obesity may disappear on deep inspiration helping to differentiate it from the deep Q wave (lead 3) of coronary disease. Combination of foregoing changes with a deep S wave in lead 2 suggests myocardial disease.

Left axis deviation may be caused by hypertrophy and/or dilatation of the left ventricle resulting from arterial hypertension, aortic regurgitation or stenosis, coarctation of the aorta or any other condition which places an additional load (strain) on the left ventricle. Extreme left axis deviation is evidence of myocardial disease that has resulted in disproportionate hypertrophy and ventricular preponderance.

RIGHT AXIS DEVIATION

The low position of the diaphragm in a tall, thin (hyposthenic) person, especially on full inspiration, leads to a vertical (pendulous) heart and may cause right axis deviation. An inverted QRS complex in lead 1 indicates right axis deviation. Extreme deviation to the right is normal in early infancy. In the adult this condition (more often than deviation to the left) points to heart disease with disproportionate hypertrophy and ventricular preponderance. Right axis deviation often accompanies mitral stenosis, pulmonary stenosis, pulmonary embolism, septal defects, patent ductus, emphysema and pulmonary arteriolosclerosis.[4]

Axis deviation (shift) cannot always be sharply separated from ventricular preponderance (strain). Vector analysis is involved and is of little clinical value.



Angle of Deviation	Potential Vector	Quadrant	Remarks
α_1	a_1 b_1	I (0° to +90°)	Normal left axis deviation
α_2	a_2 b_2	II (+90° to +180°)	Abnormal right axis deviation
α_3	a_3 b_3	IV (0° to -90°)	Abnormal left axis deviation

Fig. 4.—Einthoven's triangle, showing the limits of normal and abnormal axis deviation.

It is more helpful to determine the cause of the QRS (and other) alterations in each instance. Axis deviation (shift) often indicates no more than a change in QRS direction due to an altered position of the normal heart, but it may be associated with heart disease.

VENTRICULAR PREPONDERANCE

The left ventricle weighs 1.8 times as much as does the right ventricle. If this ratio of the mass of left and right ventricle is altered the graphic waves vary from the normal. The diagnosis of ventricular preponderance can be made only after the heart has been shown to be enlarged. Only then can graphic changes be attributed to heart disease. Heart disease may show only an altered QRS complex. More often there are associated changes in the S-T interval and the T wave. Preponderance curves are the result of a disproportionate load

4. Leopold, S. S.: Etiology of Pulmonary Arteriolosclerosis (Ayerza's Syndrome), Am. J. Med. Sc. **219**: 152, 1950.

on the corresponding ventricle. They mean that the ventricle (left or right) is not actually but only relatively larger than the other ventricle.

The terms axis deviation (axis shift) and ventricular preponderance (ventricular strain) are synonomous. Heart strain patterns do not indicate the cause, extent, duration or outlook of the disease. The S-T, T pattern usually indicates more advanced disease than do QRS patterns. A fully developed S-T, T pattern represents a more advanced stage than does S-T depression only, with T still upright. Changes in the T wave are significant in the following order: upright, flattened, diphasic, isoelectric or inverted in lead 1, 1 and 2 and 2. Intraventricular block,[5] the alterations of myocardial infarction and combined patterns represent advanced heart disease. An associated P-mitrale (P wave in leads 1 and 2 tall, broad and notched with changes of P waves in lead 2 less pronounced and the P wave in lead 3 upright, broad, notched, diphasic or inverted); a P-pulmonale (the P wave in lead 1 small and flat; the P wave in leads 2 and 3 tall and peaked without notching; often associated with low voltage or right heart strain), or the tall, peaked, unnotched P waves in leads 1, 2 and 3 of congenital heart disease may be of diagnostic assistance in equivocal cases. Patterns of heart strain must be differentiated from the graphic alterations of the various diseases known to give rise to right or left axis deviation or ventricular preponderance. In combined patterns, left and right heart strain partially or wholly neutralize each other. This type is rare. A diagnosis of combined heart strain should not be made until all other causes are eliminated.

WAVES OF THE NORMAL ELECTROCARDIOGRAM

The electrocardiogram of a cardiac cycle consists of a P, QRS and T wave. The excitation (depolarization) wave responsible for P and QRS precedes auricular and ventricular contraction; the T wave (depolarization) represents the finale of ventricular systole. Measurements of deflections should be made on the lead in which they are the greatest. This is often lead 2 (fig. 7). Leads 1 and 3 should not be neglected. They often reveal information not contained in lead 2.

The Normal Wave.—The P wave is the auricular deflection (fig. 2 *B*). It represents the spread of the excitation (depolarization) wave through the auricular musculature parallel with its endocardial and epicardial surface. This wave of depolarization precedes, by a brief interval, the wave of contraction in the auricles. It originates from the normal pacemaker, at the head of the sinoauricular node, and spreads throughout the auricles and finally to the auriculoventricular node. The wave of depolarization gives rise to differences in electric potential, and these cause deflections recorded as the P wave. The path followed by this excitation wave through the auricular musculature determines the direction and contour of the P wave.

Normally the P wave is a blunt, round, sometimes slightly notched or scalloped upright deflection, less than 0.10 second in duration and less than 2 mm. tall. The P wave may be upright, isoelectric, diphasic or inverted in lead 3 of a normal electrocardiogram. After the P wave a slight dip may occur. It is most often seen in records of heart block. This T_a wave (auricular T wave) represents repolarization of the auricles. This wave is of little clinical significance. The T_a wave is opposite in direction to the P wave. The T wave is in the same direction as the QRS complex.

The Normal P-R Segment and Interval.—The P-R segment represents auricular depolarization plus the delay in spread of the impulse through the auriculoventricular node. The P-R interval represents the auriculoventricular conduction time, i. e., the time required for the excitation wave to travel from the sinoauricular node via the auricular musculature and the auriculoventricular node to the upper reaches of the bundle of His. It represents the time required for depolarization of the auricular musculature plus the delay in transmission of the wave through the junctional tissue. It is measured from the beginning of the upstroke of the P wave to the beginning of the QRS complex (upstroke or downstroke) and normally is not more than 0.20 or less than 0.10 second in duration.

The Normal QRS Complex.—The QRS complex is the wave of ventricular systole. It represents depolarization of the ventricles. It is due to an impulse which has traversed the auriculoventricular bundle, its main divisions, the right and left bundle branches and their arborizations (which form the Purkinje network) and the ventricular muscle from the endocardial to epicardial surface. It represents the spread of a supraventricular impulse through the normal conduction system and musculature of the ventricles; the QRS complex has physiologic (normal) outlines. This excitation wave spreads through the conduction system ten times as rapidly as through the heart muscle.

The normal QRS wave is a sharp, spikelike, monophasic, diphasic or triphasic complex. It consists of a small (or no) initial downward deflection (Q wave) or an initial, tall, upward deflection (R wave), the downstroke of which, should it go below the isoelectric level, becomes the S wave of the complex. A second positive deflection may follow this S wave and is called an R^1 wave; this designation is empiric and illogical. Normally the complex is predominantly upward. If the major QRS deflection is above the isoelectric level it is termed an upright QRS complex; if below, it is inverted; if as much above as below, it is diphasic. Slight slurring may occur normally or with axis deviation or rotation of the heart in any direction. The QRS complex may be notched in lead 3 of a normal electrocardiogram. The Q and S waves in leads 1 and 3 are used in the determination of axis deviation. The normal QRS complex varies from 5 to 20 mm. in height. The QRS complex (from the onset of the first wave to the end of the last wave) should not measure over 0.10 second in duration. It varies inversely with the heart rate, age and height of the subject.

The QRS interval represents the duration of intraventricular conduction. It is less than 0.10 second normally. It is measured from the beginning of Q or R wave to the end of R or S wave.

The Junctional (J) Point.—J indicates the junctional point between the QRS (R or S) complex and the S-T interval. Normal deviation is not more than 1 mm. in either direction. Rarely, tachycardia may cause a "high takeoff" in a normal heart because repolarization begins before depolarization is complete; this gives R instead of S as the terminal wave of the QRS complex. Tachycardia, a T_a wave (T negative with P positive), digitalis or other drugs may cause a "low takeoff."

5. The bundle of Kent syndrome may confuse.[6]

The Normal S-T Segment and Interval.—The S-T segment represents the short period of electrical balance between cardiac apex and base. It represents final depolarization and initial repolarization of the ventricular musculature. The segment extends from the end of the QRS complex to the beginning of the T wave.

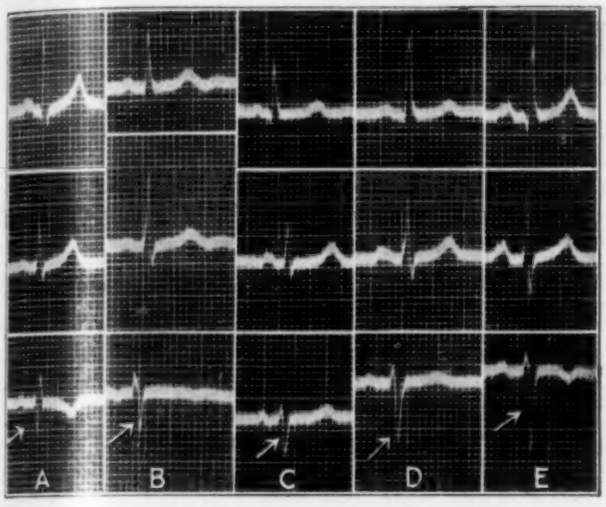


Fig. 5.—Records from five hearts showing different degrees of left axis deviation. In *E*, left ventricular preponderance can be diagnosed only after these changes have been shown to be the result of heart disease.

Like J, it does not normally vary over 1 mm. above or below the base line in limb leads. Its length is difficult to determine because it often merges with the T wave. With a rate of 80, in the adult male, it varies from 0 to 0.125 in the lead in which it is the shortest; this lead usually has the tallest T wave.

The S-T interval is composed of the S-T segment and the T wave. Both segment and interval represent phases of the same process during systole. Both are

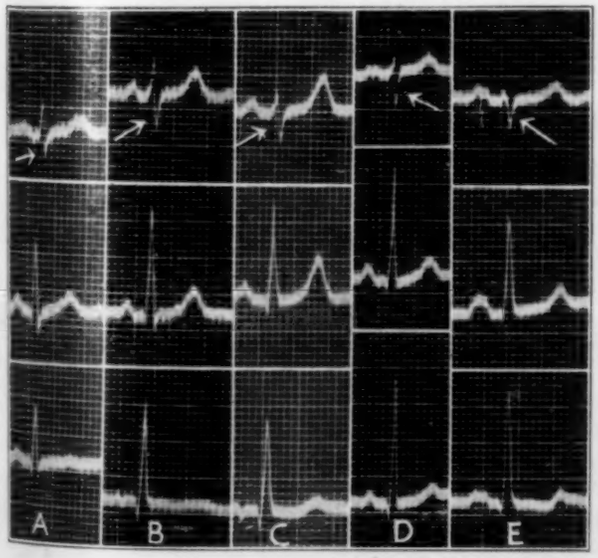


Fig. 6.—Records from five hearts to show different degrees of right axis deviation. *A*, *B* and *C* show a tendency to right axis deviation. This change becomes progressively more decided from *A to E*. In *D* and *E* the diagnosis of right ventricular preponderance can be made only after it is known from other sources that the heart is enlarged and that these alterations result from changes in the heart itself.

readily susceptible to modifying influences, physiologic, toxic and pathologic, which may produce changes in their amplitude or contour. Normally the S-T interval (like J and S-T segment) does not vary more than 1 mm. from the base line of the record. Its normal duration is 0.24 to 0.28 second, but this value is not used clinically, as is the Q-T interval, to determine impairment of the heart.

The Normal T Wave.—The T wave represents the finale of ventricular systole and terminates when all parts of the ventricles become quiescent. It represents the process of repolarization of the heart, the decline or subsidence of the state of electrical excitation in the ventricular musculature, i. e., the stage of retreat (repolarization) of this electrical activity, as contrasted with the stage of invasion (depolarization) which gives rise to the QRS complex.

Normally the T wave is a blunt or rounded upright deflection. It varies from 1 to 5 mm. in height and has a maximum duration of 0.25 second. The T wave in lead 3 is often inverted in the normal electrocardiogram. The T wave in lead 1 is especially valuable for study, since it shows not only many of the same changes as the T wave in lead 2 but often more decided and characteristic abnormalities, suggestive of certain cardiac lesions. A flat T wave in lead 1 often indicates myocardial damage. A negative T wave in lead 1 is definite evidence of heart disease. Increased amplitude may be transient, a physiologic effect of vigorous exercise. It is seen in, but is not diagnostic of, thyrotoxicosis. The

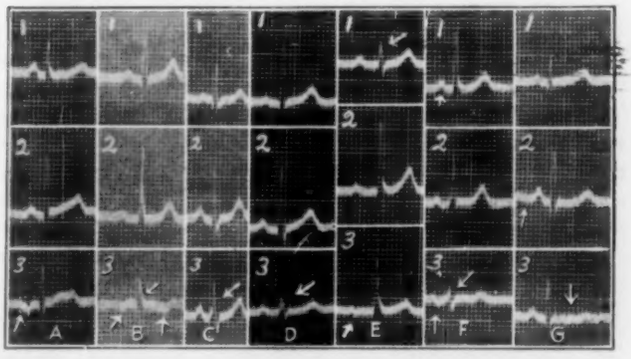


Fig. 7.—Seven records showing variations within normal limits: *A*, P wave in lead 3 inverted and notched. *B*, in lead 3 the P wave inverted, the QRS complex slurred and diphasic, the T wave inverted. *C*, the QRS complex in lead 3 notched and diphasic. *D*, the QRS wave in lead 3 of low voltage, diphasic and notched. *E*, the P wave in lead 3 diphasic, the QRS complex in lead 1 slurred. *F*, in lead 1 the P wave is notched, in lead 3, inverted; the QRS complex in lead 3 is diphasic and notched. *G*, somatic muscle tremor in leads 2 and 3. The term voltage indicates the height of the QRS complex in all leads; amplitude is restricted to mean the height of waves in any one lead.

T wave decreases in amplitude with increasing age of the patient.

The Normal Q-T Interval.—The Q-T interval extends from the onset of the QRS complex to the end of the T wave. It represents the duration of depolarization and repolarization of the ventricles and is the best measure available for the duration of electrical and mechanical ventricular systole. It varies primarily with the heart rate. A formula for calculating the normal Q-T interval has been devised.[6] With a rate of 75, 80 and 100 per minute, the upper limits of normal for men are 0.394, 0.384 and 0.347 second in duration, values for women are 0.007 to 0.011 second greater.

INDIVIDUAL WAVE CHANGES

Individual wave changes are often best studied in lead 2. Leads 1 and 3 should not be neglected.

6. Ashman, R., and Hull, E.: Essentials of Electrocardiography for the Student and Practitioner of Medicine, New York, Macmillan Company, 1937.

Abnormal P Wave.—The P wave may show change when the heart is normal, but abnormalities are more frequent with disease. The P wave may be tall, peaked, rounded, slurred, notched, flat, isoelectric, diphasic or negative. Increased amplitude above 2 mm. or increased duration (width) beyond 0.1 second is abnormal in a subject at rest. This may occur physiologically from tachycardia due to exercise or other cause. Decreased amplitude of the P wave may occur from vagal depression of the sinoauricular node with displacement of the pacemaker from the head toward the tail of the node. It may result indirectly (vagal stimulation) from digitalis, from carotid sinus or with slowing of the heart at the end of expiration. It is seen in hypothyroidism but returns to normal with proper therapy. P waves may be difficult to identify if they are nearly isoelectric (low voltage curve), but usually they can be seen in at least one lead. An isoelectric P wave is not seen above or below the base line; if not seen in any lead it is absent. A diphasic P wave is partly above and partly below the base line. Notching of the ascending or descending limb of the P wave suggests disease of the auricular muscle, particularly if the P wave is high and wide. An inverted P wave in lead 2 is always abnormal; it denotes the presence of an ectopic rhythm, i. e., auricular extrasystole, arising from an abnormal auricular focus. If the point of origin is not far distant from the pacemaker the P wave may be only slightly inverted or diphasic or may be wholly upright and represent a premature (ectopic) beat arising in the pacemaker itself (near its center or tail) or at its border. With auricular extrasystoles from an ectopic focus near the auriculoventricular septum or (retrograde) from the auriculoventricular node, the P waves are inverted as in upper nodal extrasystoles and rhythm. In lower nodal extrasystoles and rhythm the P waves appear in the S-T interval. Paroxysmal auricular tachycardia shows the changes of an ectopic P wave. An inverted P wave also occurs in nodal rhythm and in nodal paroxysmal tachycardia, the result of retrograde conduction. P waves are most often absent in auricular fibrillation, being replaced by irregular fibrillary auricular contractions, manifest as f (flutter) waves. In auricular flutter these waves occur at a regular rate. In auriculoventricular block, paroxysmal tachycardia, extrasystoles, reciprocal or nodal rhythm, the P wave may be buried in the QRS complex or the T wave or may appear as notching of the ascending or descending limbs of these waves. In sinus arrest or sinoauricular block, transient or complete, P waves are absent.

If the auricles are hypertrophied[7] the P wave is tall and peaked; if they are dilated it is upright and broad; if they are diseased it is wider, and if focal damage exists it may be slurred, notched or otherwise deformed. These changes occur most often in mitral stenosis, pulmonary disease, hypertension, coronary occlusion, heart failure and congenital lesions.

Abnormal P-R Segment and Interval.—A P-R segment over 0.10 second in duration is most often due to disease of the auriculoventricular node or bundle of His. If the P-R interval is over 0.20 second in duration it is prolonged. This is a cardinal sign of auriculoventricular block. The greater part of the interval is consumed by the passage of the excitation wave through the junctional tissue. It is often a diagnostic aid in detecting cardiac involvement in rheumatic fever. If atropine fails to abolish the block, disease is probably responsible. Rheumatic fever, posterior infarction, arteriosclerosis, diphtheria, syphilis and congenital anomalies may involve the conduction system and cause auriculoventricular block. Digitalis therapy or auricular disease (wide P wave) may cause a long P-R interval.

A P-R interval less than 0.10 second in duration occurs in (upper) nodal extrasystoles and rhythm and in the bundle of Kent syndrome.[8] In these conditions the P wave, often inverted, occurs just before the QRS complex. It may appear shortened in heart block, ventricular extrasystoles, reciprocal rhythm and ventricular escape, but here it is better to speak of it as the interval between P and R rather than as a P-R interval as such.

Abnormal QRS Complex.—A supraventricular impulse, distributed in a partial or faulty fashion below the auriculoventricular node, gives rise to a QRS complex of abnormal form, i. e., an aberrant QRS complex. It is the result of an abnormal spread of the excitation wave—a potential developed in an abnormal manner. It may be slurred, notched or splintered (on upstroke or downstroke), M, N, V or W shaped; it indicates disease of the ventricular muscle or conduction system. A large Q wave in lead 3 or S wave in lead 1 is more than one fourth of the tallest R wave in any lead. Increased depth of Q or S waves in lead 2 is abnormal and indicates abnormal left axis deviation or congenital heart disease. The QRS complex is wide and often decidedly slurred or notched in ventricular extrasystoles, paroxysmal ventricular tachycardia and intraventricular block. Low voltage signifies that the amplitude of the QRS complex is less than 5 mm. in either direction from the base line in all limb leads. It is seen in myocardial disease, infarction, cardiac dilatation, pleural or pericardial effusion, anasarca, beriberi and hypothyroidism. Alternation of amplitude of the QRS complex with or without change of contour or duration is rare, although alternation of the arterial pulse is common.

Prolonged QRS Interval.—If the QRS complex is over 0.10 second in duration (width) it is abnormal; it is definite evidence of disease. Medication with digitalis has no effect on the interval. Quinidine therapy may increase its duration. Increased width of the QRS complex is due to decreased rate of depolarization (myocardial disease) and/or lengthened path (ventricular hypertrophy) of the depolarization wave.

Abnormal Junctional (J) Point.—An elevation beyond 1 mm. represents a "high take-off" from the R wave. A depression of more than 1 mm. represents a "low take-off" from the S wave. Temporary displacement is due to ischemia or death of heart muscle.

Abnormal S-T Segment and Interval.—The S-T segment and interval (like J) is abnormal if elevated more than 1 mm. (0.1 millivolt) above or depressed more than 1 mm. below the base line of the tracing. Hypertrophy, pericarditis, infarction or coronary disease (with or without exercise) may cause displacement of the S-T segment or interval.

Abnormal T Wave.—The T wave may be tall, peaked, rounded, slurred, notched, flat, isoelectric, diphasic or negative. A tall, peaked T wave occurs as a reciprocal

7. The amplitude of wave or complex tends to vary directly with the mass of heart muscle depolarized.

8. Wolff, L.; Parkinson, J., and White, P. D.: Bundle Branch Block with Short P-R Interval in Healthy Young People Prone to Paroxysmal Tachycardia, Am. Heart J. 5:685, 1930.

change with the inverted coronary T wave in lead 1 or 3 as the result of myocardial infarction. With abnormal axis deviation, ventricular extrasystoles and bundle branch block the T wave, like the S-T interval, is opposite in direction to the abnormal QRS complex, the T wave often being abnormally large. This frequently aids one in distinguishing cardiac disease from altered position of the heart, where T and QRS have the same direction. Decreased amplitude of the T wave most commonly results from left or right axis deviation, bundle branch block, medication with digitalis, quinidine or morphine, acute infections, anemia, hyperthyroidism or functional myocardial impairment from any cause. An isoelectric T wave coincides with the base line and is not discernible. A diphasic T wave is partly above and partly below the base line. Notching due to a superimposed P wave occurs in tachycardia, in auriculoventricular block and infrequently in hypothyroidism, congenital heart disease or with digitalis medication. Digitalis may cause depression of the S-T segment with or without inversion of the T wave. It may cause any other type of graphic change. Such evidence may serve as a guide to therapy or may indicate recent use of the drug.

A T wave that is flattened, isoelectric or inverted, especially if the QRS complex is slurred or notched, indicates impaired myocardial function or heart disease. A diphasic T wave, if constant, may be the percursor of a permanently negative T wave. The T wave of myocardial infarction is usually cove shaped, and is best studied in lead 1 or 3 rather than in lead 2. Alternation of the T wave (QRS complex or P) is infrequent but does occur with or without pulsus alternans.

Certain cases of arterial hypertension present decided left axis deviation; the QRS complex is high in amplitude and less than 0.10 second in duration; there is depression of the S-T segment and inversion of the T wave in lead 1, with the T wave in lead 2 positive, diphasic or negative. This may be confused with a coronary occlusion pattern. Serial electrocardiograms offer the only positive means of differentiation. In hypertension the changes present in the initial record persist unaltered in subsequent records, in contrast to the characteristic progressive and regressive changes of infarction. In hypertension, once established, the pattern remains practically unaltered until death. This characteristic of the hypertension curve may be the sole evidence of preexisting hypertension as the cause of an existing left ventricular hypertrophy. Aortic stenosis or regurgitation, mitral disease, bundle branch block or a combination of these may cause similar changes. Inversion of the T wave in lead 3 without other abnormality is consistent with a normal myocardium. If myocardial damage or right axis deviation is present the tracing will show other abnormalities.

Prolonged Q-T Interval.—The Q-T interval varies widely with the heart rate. Its duration varies inversely with the blood calcium level. The interval is prolonged after vomiting or forced breathing, in uremia or hypoparathyroidism or with a low blood calcium level from any cause. Toxemia, myocardial ischemia or cardiac disease of any type, digitalis medication and other conditions will prolong the interval. Its return to normal depends on the reversibility of the condition responsible.

(To be continued)

Clinical Notes, Suggestions and New Instruments

EOSINOPHILIC GRANULOMA OF THE JEJUNUM

A Hitherto Undescribed Lesion of the Intestines

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and
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REPORT OF CASE

N. E., a white man aged 76, was admitted to the Prospect Heights Hospital Jan. 21, 1949, for the relief of intestinal obstruction and vomiting. He had been taking a certain physic for many years because of chronic constipation. During the last two weeks his constipation became much worse and he began to vomit. The patient's past history and family history were noncontributory. There was nothing to suggest allergic disease in the patient or any member of his family.

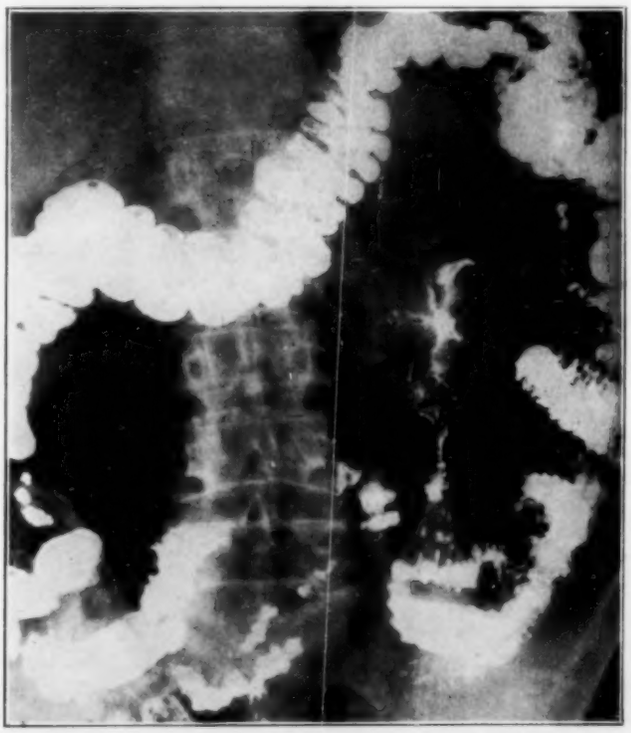

Fig. 1.—Roentgenogram showing the obstructing mass (arrow) in the middle third of the jejunum.

Physical Examination.—He was a fairly well nourished, elderly man, who appeared acutely ill. The blood pressure was 150 systolic and 80 diastolic, the pulse rate 70 and the respiratory rate 20 per minute. The rectal temperature was 99.8 F. The chest was normal. Examination of the abdomen disclosed a freely moveable mass, the size of an orange, in the region of the transverse colon. The liver was palpable about 2 fingerbreadths below the right costal margin. A roentgenographic and fluoroscopic examination performed by Dr. I. S. Silverstein, January 18 had revealed a neoplasm of the middle third of the jejunum (fig. 1), neoplastic (?) enlargement of the head of the pancreas and a hiatus herniation of the fundus of the stomach. There was also fixation of the diseased portion of the jejunum to the level of the tip of the left transverse process of the third lumbar vertebra. An electrocardiogram three days after admission showed no changes.

Laboratory Data.—Examination of the blood showed 4,130,000 red cells and 6,100 leukocytes per cubic millimeter. The hemo-

From the Departments of Pathology and Surgery, Prospect Heights Hospital, and Pathology Department, Cumberland Hospital.

globin was 78 per cent (Haden-Hausser). The differential blood smear showed polynuclear cells 60 per cent, lymphocytes 35 per cent, eosinophils 3 per cent and monocytes 2 per cent. The sedimentation rate (Linzenmeier) was 21 mm. in one hour. The urine was normal. Chemical examination of the blood showed sugar 105 mg., urea nitrogen 9.4 mg., uric acid 3.1 mg. and serum amylase 77 mg per hundred cubic centimeters.

Treatment and Course.—On the fourth hospital day the patient was given a transfusion of 500 cc. of group B, Rh-positive blood in preparation for an exploratory laparotomy on the following day. At operation a hard, irregular mass was found in the jejunum, about 35 cm. from the ligament of Treitz. Proximal to this, the jejunum was moderately dilated. The omentum was bound by adhesions to the jejunal mass and pulled up to the greater curvature of the stomach. The mesenteric lymph nodes in the vicinity of the lesion were all enlarged. Approximately 40 cm. of jejunum containing the tumor was resected, followed by a side to side anastamosis of the proximal and distal ends of the severed intestine. The postoperative recovery was entirely uneventful, and the patient, cured, was discharged two weeks after the operation.

Report of the Pathologist.—The pathologist's report on the examination of the surgical specimen follows: Grossly, the specimen was a segment of jejunum, 35 cm. long. The lumen of the midportion of the segment was obstructed by a bulging, annular, gray, soft, ulcerating mass 7 cm. in its greatest dimension (fig. 2). It extended from mucosa to serosa. Microscopically, the tumor mass was composed almost entirely of granulomatous tissue covered by a pyogenic membrane (fig. 3). Within the granuloma there was decided reticulum hyperplasia and collagen

Fig. 2.—Gross specimen which occluded the intestine. Note (*A*) dilated jejunum above the mass (*B*); the narrow distal jejunum (*C*), and the reflected section of the granuloma (*D*) extending to serosa.

deposition, with massive infiltration by leukocytes, about 95 per cent of which consisted of eosinophils, except in the portions of the lesion involving muscularis and serosa, where the infiltrate was predominantly lymphocytic. The diagnosis was eosinophilic granuloma of the jejunum.

Remarks.—It is now approximately ten months since the operation and the patient is doing well. In view of the tissue eosinophilia which was noted, skin tests were performed, using the various group allergens, all yielding negative results. However, the oidium and trichophyton antigens gave a positive reaction (4 plus).

COMMENT

To our knowledge, the type of granuloma of the intestinal tract reported here has never before been described. Banks[1] classified chronic intestinal granulomas on an etiologic basis,

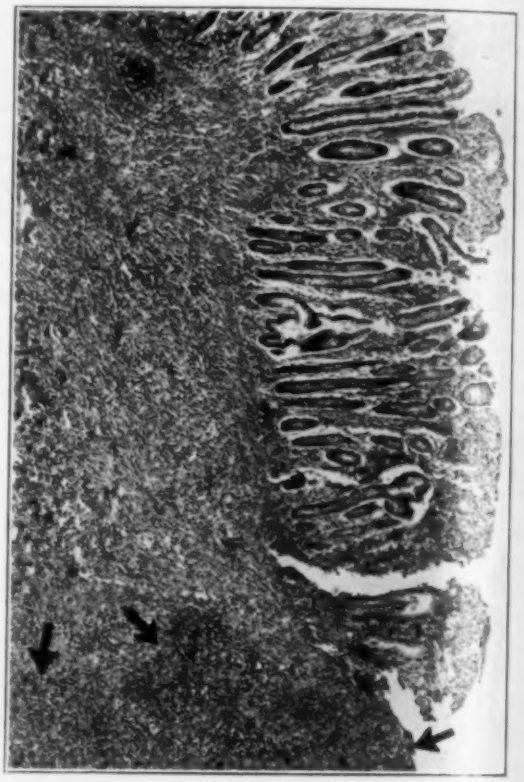

Fig. 3.—Photomicrograph (×43) of jejunal granuloma through margin of ulcer. Note the abrupt transition between normal mucosa and ulcer, also the irregular but well defined margin of infiltration in submucosa and muscularis (arrows).

none of which fits the description of our case. Mock[2] divided the various gastrointestinal granulomas into three groups, gastrointestinal or mesenteric, extraperitoneal and traumatic. In none of those are the lesions described comparable to that found in our case. The various papers[3] to which Banks refers do not describe any granulomas of the type reported herein. Kaijser,[4] however, did describe a case in which a stomach, resected because of ulcer symptoms, showed thickening of the pylorus by an inflammatory process in which the eosinophils were exceedingly numerous. Stout,[5] who examined the sections of tissue in our case, commented as follows: "Although I have never observed a case in the intestinal tract, I have seen 7 cases in the stomach in some ways comparable to this, which have been called eosinophilic granuloma for want of a better term. Six of these cases were collected in the Charles University

1. Banks, R. W.: Chronic Intestinal Granulomas, in Bockus, Henry L., and others: Gastro-Enterology, 1944, vol. 2, p. 849.

2. Mock, H. E.: Infective Granuloma; Non-Specific, Chronic, Tumor-Like: Productive Inflammations of the Gastrointestinal Tract, Surg. Gynec. & Obst. **52**: 672, 1931.

3. Tietze, A.: Ueber entzündliche Dickdarmgeschwülste, Ergebn. d. Chir. u. Orthop. **12**: 211, 1920. Moschowitz, E., and Wilensky, A. O.: Non-Specific Granulomata of the Intestines, Am. J. M. Sc. **166**: 48, 1923. Ginzburg, L., and Oppenheimer, G. D.: Non-Specific Granulomata of the Intestines: Inflammatory Tumors and Strictures of Bowel, Ann. Surg. **98**: 1046, 1933. Weber, H. M.: Non-Neoplastic Tumefactive Lesions of Large Intestine: Inflammatory Tumefactions, Am. J. Roentgenol. **36**: 637, 1936. Wilkie, D.: Single Ulcer of Ascending Colon and Its Complications, Surgery **1**: 655, 1937. Powers, J. H.: Unusual Inflammatory Lesions of the Ileocecal Region, Ann. Surg. **103**: 279, 1936. Wilensky, A. O.: Essential Nature of Non-Specific Granulomatous Lesions of Gastrointestinal Tract, Surgery **6**: 288, 1939. Kini, M. G.: Granulomatous Ulcers of Small Intestines Causing Annular Stricture and Intestinal Obstruction, Indian M. Gaz. **76**: 662, 1941.

4. Kaijser, R.: Zur Kenntnis der allergischen Affectionen des Verdauungskanals vom Standpunkt des Chirurgen aus, Arch. f. klin. Chir. **188**: 36, 1937.

5. Stout, A. P.: Personal communication to the authors.

Medical School in Prague (Czechoslovakia) by Dr. J. Vanek.[6] . . . Since I saw those cases I have observed another in this hospital, picked up by chance in a stomach removed for ulcer. . . . These granulomas apparently do not have any relationship with eosinophilic granuloma of the bone marrow and are entirely localized lesions."

It was deemed advisable to report this case in the belief that general cognizance of the existence of this lesion may lead to its more frequent recognition. The fact that the lesion appears to be benign makes it even more desirable that these cases be reported. It is hoped that determination of their true nature by further study of additional material will make their preoperative diagnosis possible. The etiologic basis of the disease remains undetermined. However, an allergic state is suspected as an important contributing factor. Kaijser's patient [4] gave a definite history of pronounced sensitivity to onions since his youth. Although our patient gave no history of being allergic to the commoner antigens, he did have a positive skin test with oidium and trichophyton allergens.

Clinically, the symptoms (protracted obstruction by a palpable mass, lymphadenopathy and rapid loss of weight) and the roentgenologic observations (obstructive mass) were misleading, in that they all indicated a malignant condition. Even the gross lesion resembled a malignant growth in every respect, except for the absence of metastasis. However, microscopic examination disclosed the benign character of the lesion, thus emphasizing the fact that all masses which obstruct the intestine are not neoplastic.

The differentiation of eosinophilic granuloma from the various specific granulomas of the gastrointestinal tract due to syphilitic, tuberculous and parasitic infections may be aided by laboratory methods, such as demonstration of the organism in the stools and serologic and skin tests. Most of the common granulomas are associated with diarrhea instead of constipation, such as was present in our case. In the foreign body granulomas (including those incited by sutures) and the lipoid granulomas which may follow injections of therapeutic medicaments in an oily base there is usually a history which helps to point to the correct diagnosis. Similar aid is usually obtainable in instances of traumatic granuloma. In granulomas associated with regional enteritis there are usually characteristic roentgenologic observations; however, they simulate the changes noted in this case so closely that differentiation is not possible. Leukemic infiltrates in the gastrointestinal tract are usually associated with hematologic manifestations of leukemia, all of which were absent in our case. Hodgkin's disease was difficult to exclude without a detailed histologic study of the lesion. The absence of Sternberg-Reed cells, pleomorphism, mitosis and necrosis within the mass militated against the diagnosis of Hodgkin's granuloma, despite the tissue eosinophilia and lymphadenopathy.

SUMMARY

1. A case of an eosinophilic granuloma of the jejunum is described which presented clinical features and a gross lesion indistinguishable from a malignant neoplasm. Histologic study alone revealed the mass to be a granuloma, characterized by excessive infiltration with eosinophils. To the best of our knowledge, no similar lesion of the intestine has hitherto been reported.

2. The etiologic nature of the lesion is undetermined, but in the tissue involved there was an underlying allergic (?) reaction which is suspected as a possible causation for the intense eosinophilic infiltration in the lesion.

3. At present there is no evidence to indicate any relationship between this intestinal eosinophilic granuloma and that of bone marrow.

4. Similar cases have probably been overlooked in the past. Therefore, attention is called to this nonneoplastic lesion of the gastrointestinal tract in the hope that with more frequent recognition of the condition more will be learned about it, and perhaps it will thus become possible to diagnose the condition preoperatively.

6. The observations of Dr. Vanek are qualitatively similar to ours despite the much greater size of the tumor described in our case. Vanek, J.: Gastric Granuloma with Eosinophilic Infiltration, Am. J. Path. **25**: 397, 1949.

SURGICAL REMOVAL OF SWALLOWED MILLER-ABBOTT TUBE

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The complications resulting from gastrointestinal intubation were recently reviewed and supplemented by the papers of Chaffee [1] and Pool.[2] The complications reported include: sinusitis and otitis media; esophageal stricture; laryngeal obstruction; knotting of the tube; rupture of esophageal varix; ruptured viscus, including esophagus, stomach and small bowel; inability to withdraw the balloon-tipped tube; breakage of the mercury-filled bag, and coiling of the tube through the pylorus, duodenum and gastrointerostomy stoma, necessitating surgical removal. A review of the literature disclosed no report of a swallowed Miller-Abbott tube, as occurred in this case.

REPORT OF CASE

W. W., a Negro man aged 35, was admitted to the Cook County Hospital on Sept. 26, 1949 with epigastric discomfort and rapidly appearing distention of the abdomen, usually following meals. There had been five previous admissions for symptoms of a duodenal ulcer which had followed a severe attack of diarrhea in 1937. Medical management was effective until January 1946. In March 1946 a transthoracic vagotomy had been performed but had resulted in only temporary relief. In June 1947 a subtotal gastric resection was done, and in November 1947 a transabdominal vagotomy was performed. One year later he was studied for possible obstruction of the small bowel.

Fig. 1.—Roentgenogram showing delay of barium at the stoma and in the lower ileum after six hours. This delay was observed only on this one film. Repeated attempts to reproduce this observation were unsuccessful.

On his recent admission the first roentgenograms showed a delay of barium at the gastrojejunal stoma and in the ileum (fig. 1). Subsequent roentgenograms failed to reproduce these observations. Examinations and hourly measurements of the

Department of Surgery, Presbyterian Hospital, University of Illinois College of Medicine (Rush) and Cook County Hospital, Chicago.

1. Chaffee, J. S.: Complications of Gastro-Intestinal Intubation, Ann. Surg. **130**: 113, 1949.
2. Pool, R. M.: An Unusual Experience with the Miller-Abbott Tube, Ann. Surg. **130**: 267, 1949.

circumference of the abdomen revealed periodic distention occurring and disappearing within fifteen to thirty minutes' time. The patient obtained relief from the distention by walking about the ward. While undergoing studies on the ward and for a period of twenty-two days as an outpatient his condition improved, and there was no recurrence of the distention. However, to obtain more data concerning the patency of the small bowel and the site of a possible obstruction, he was readmitted,

Fig. 2.—Roentgenogram taken before laparotomy. Mercury has leaked from the bag and is seen in the cecum. No rupture of the balloon tip was demonstrable after its removal. The tube pattern has become compact, and the tip of the tube now points to the left upper quadrant. Repeated roentgenograms showed no change in direction or progress of the tube over a period of forty-eight hours.

and a Miller-Abbott tube was passed into the stomach. The tube required three days to pass beyond the gastrojejunostomy stoma. On the fifth day the tip was pointing toward the right lower abdominal quadrant. The patient overheard a discussion about the danger of swallowing the entire tube; five minutes later he reported that the metallic adapter had become detached and the remainder of the tube had passed into the stomach. It was expected that the tube would pass through the intestinal tract and would then be recovered. During the following forty-eight hours the patient was not more uncomfortable than he had been many times previously. There was no distention, nausea or vomiting, and there were no increased peristaltic sounds. Twenty-four hours after the tube had been swallowed, continuous aspiration of the stomach was started through a Levin tube. A tender mass was palpable to the right and below the umbilicus. The position of the Miller-Abbott tube was followed by repeated roentgenograms. In forty-eight hours the tip of the tube had changed direction toward the left upper quadrant; the closer tube pattern suggested a folding of the coils within the small bowel, with no further progress in the passage of the tube (fig. 2).

An emergency laparotomy was performed through a right rectus incision. The 315 cm. tube lay in overlapping coils within a 75 cm. segment of dilatated, moderately edematous ileum. Directly distad to this, soft to dense fibrous peritoneal adhesions had produced three sharp kinks in the ileum. These were freed. The tube was removed through a minimal enterostomy, which was then closed. The postoperative course was uneventful except for a small superficial infection of the wound. There has been as yet no recurrence of symptoms.

COMMENT

Preoperatively this case presented either an unusual postvagotomy syndrome, since the vagus fibers were interrupted at three different levels, or an incomplete intestinal obstruction due to adhesions. After the patient swallowed the tube it was expected that it would pass through the intestinal tract and would be recovered, as was reported by Paviot and Levrat [3] and Harris and Gordon [4] in cases in which the tube was released, after attempts to withdraw it through the mouth had failed. After removal of the tube no rupture or site of leakage of the rubber bag could be demonstrated.

Three factors contributed to the swallowing and nonpassage of the tube: (1) the tube being swallowed after the metal adapter became detached, either due to the patient's manipulations or to the insecure fixation of the adapter on the tube; (2) the loss of the mercury in the balloon tip, which interfered with the forward propulsive action of the peristaltic waves on the tip, and (3) the kinking of the intestinal loops, which had produced an incomplete intestinal obstruction.

LOBECTOMY IN A PATIENT EIGHTY-TWO YEARS OF AGE

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and
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New York

The recent years have witnessed gradual elimination of many of the contraindications to resectional surgery. This has been the result of improvements in surgical technic, anesthesia and postoperative management. Pulmonary resection in elderly patients is no longer considered a hazardous surgical adventure. However, successful lobectomy in a patient in the ninth decade of life is an unusual occurrence.

REPORT OF CASE

Following is a case report of a successful lobectomy for bronchiectasis in a patient 82 years of age.

H. P., a retired university librarian, was first observed in January 1946. She was 79 years of age at the time, and her complaint was unproductive cough of one week's duration.

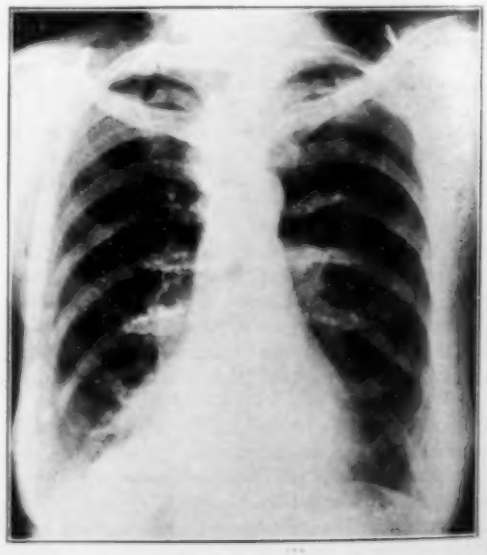

Fig. 1.—The roentgenogram taken Feb. 9, 1946 shows an area of density involving the middle lobe of the right lung. The thorax is emphysematous. The outline of the heart is within normal limits.

Physical examination disclosed a well developed elderly woman of good nutritional status and of unusual stamina for her age. The throat was injected. Examination of the thorax revealed

3. Paviot, J., and Levrat, M.: Double Knot of Einhorn Tube Within Duodenum Preventing Its Removal Through Pylorus, Lyon med. **151:** 231, 1933.

4. Harris, F. I., and Gordon, M.: Further Experience with the Single Lumen Mercury Weighted Tube and Analysis of Complications, Surg., Gynec. & Obst. **86:** 647, 1948.

dulness and diminished breath sounds over the lower lobe of the right lung, posteriorly. The heart was not enlarged, and there were no murmurs. The ventricular rate was 80 per minute with regular sinus rhythm. The blood pressure was 182 systolic and 96 diastolic. The oral temperature was 100 F. Roentgen examination (fig. 1) showed a density in the region of the middle lobe of the right lung and emphysema of the remaining pulmonary fields. The lesion was interpreted as old pleural involvement. The patient's symptoms cleared up after one week of routine medical treatment.

The cough recurred in August 1948, after the patient had had excellent health for two and a half years. In January 1949 the cough became productive, and the patient noted a daily expectoration of about 2 ounces (60 cc.) of thick, purulent, nonsanguineous sputum. During the preceding five months she had lost 9 pounds (4.1 Kg.). The patient was acutely ill, toxic and febrile. The signs in the chest were unchanged, but roentgenograms (figs. 2 and 3) showed consolidation of the anterior segment of the middle lobe of the right lung. The temperature fluctuated between 98 and 102 F., orally. The sedimentation rate (Westergren) was 45 mm. per hour. The blood count showed 20,000 white blood cells with 74 per cent polymorphonuclear neutrophils and 3 per cent metamyelocytes. There was no anemia. The sputum was negative for tubercle bacilli. Administration of 600,000 units of penicillin daily, intramuscularly, for one week did not alter the clinical course. On Feb. 16, 1949 a sputum specimen was submitted for staining by the Papanicolaou method and was reported positive for malignant growth (fig. 4).

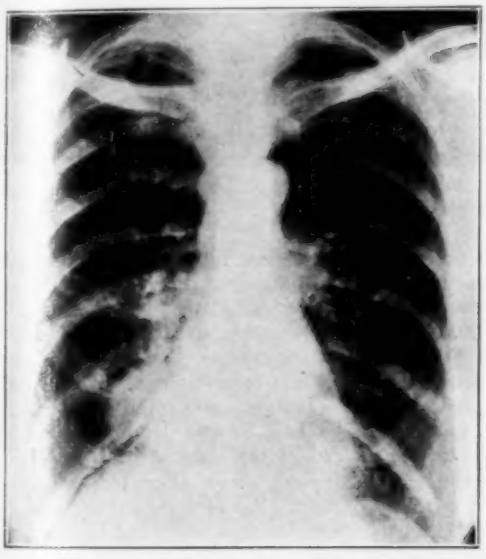

Fig. 2.—The roentgenogram taken Feb. 18, 1949 shows the dense area in the middle lobe of the right lung to be more sharply defined.

The patient was admitted to the Doctors Hospital on Feb. 18, 1949. Bronchoscopy showed pus draining from the right middle bronchus but no evidence of tumor. The biopsy was also negative. However, because of the positive Papanicolaou smear and the clinical course, it was believed that the patient had a malignant lesion of the middle lobe and that resection was the procedure of choice. By this time the patient was beginning to show the effects of chronic suppuration, and it was evident that without surgical intervention she would not live more than one or two months, at most.

On Feb. 23, 1949, an exploratory thoracotomy was performed with the patient under endotracheal anesthesia using cyclopropane and ether. The incision was in the third anterior intercostal space. The middle lobe of the right lung was partially atelectatic and adherent to the upper lobe. No distinct interlobar fissure was present. There were no enlarged lymph nodes. The middle lobe of the right lung and the segment of the upper lobe adherent to the diseased area were removed. The middle lobe bronchi were sectioned at the division of the main middle lobe bronchus. The segmental middle lobe bronchi were tied and sutured. The middle lobe vessels were tied and cut. The proximal ends of the middle lobe bronchi were pleuralized by suturing pleura over them. Penicillin was placed in the pleural cavity, and the chest was closed in the usual manner without drainage.

Microscopic section of the right middle lobe showed chronic inflammation and bronchiectasis. The segmental bronchi and their subdivisions were dilated and contained organized exudate

Fig. 3.—The right lateral view shows the density to be anterior to the main interlobar fissure and directly above the diaphragm.

in the lumens. The epithelium was chiefly the pseudostratified columnar type. The submucosa was fibrous and showed a mixed exudate of lymphocytes and plasma cells. Hyperplastic lymphoid follicles were noted at intervals. The surrounding alveoli contained a fibrinopurulent exudate of neutrophils undergoing organization. The subpleural region was composed of edematous fibrous tissue with focal accumulation of anthracotic pigment. There was no evidence of malignant growth.

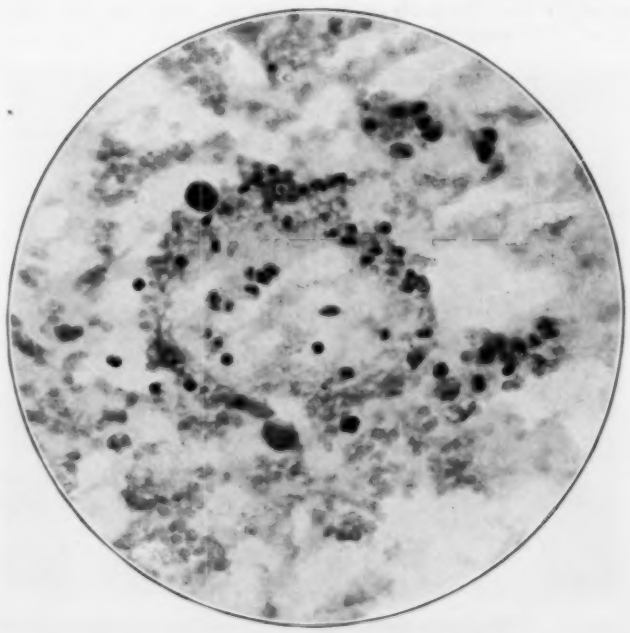

Fig. 4.—The sputum smear shows numerous pus cells surrounding several large ovoid cells with oversized hyperchromatic nuclei, some in mitosis (slightly reduced from a magnification of × 360).

The postoperative course was uneventful except for the development of auricular fibrillation, which responded to quinidine therapy. Convalescence was normal, and the patient was dis-

charged on March 11, 1949, twenty-one days after operation. At the latest check-up, on Oct. 25, 1949, the patient was in excellent general condition and entirely free of pulmonary complaints.

CONCLUSIONS

Two conclusions may be drawn from this case report: first, the dangers of surgical intervention were far less than those incurred by the chronic suppurative process, and second, the cells of malignant appearance in the sputum smear were the result of inflammation. This experience is not unique and should not be interpreted as discrediting the usefulness of study of exfoliated cells in the diagnosis of carcinoma of the lung. The possible occurrence of cells of malignant appearance in the sputum of patients with chronic pneumonitis should be accepted and the responsibility for the diagnosis and treatment of the patient should be left entirely with the clinician.

45 Gramercy Park North (10).

ACCIDENTAL SKIN ULCERATIONS FROM RADIOISOTOPES

Recognition, Prevention and Treatment

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and
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The subject of cutaneous ulcerations from radioisotopes is not new, as irradiation reactions have besieged man since 1895, when Wilhelm Röentgen first introduced his discovery. We realize that radiologists and physicists working with radioactive substances have carefully considered the problem of handling irradiated tissues; however, physicians should be able to recognize these lesions.

Patients who leave medical centers where radioactive isotopes are being used may later have a radioactive lesion which might not be recognized. A carefully taken history should bring the cause to the attention of the physician; however, we have found that even fluoroscopic lesions often are unrecognized.

Fig. 1.—Ulcerated area eight weeks after injection of radioactive yttrium chloride.

Recently the newer isotopes have been released at low cost. This is likely to result in careless use of these agents, if those who use them are not forewarned. The use of radioactive isotopes is to be encouraged, for these agents will serve man well if properly controlled.

These new agents are being used under the most careful supervision known to man. In most instances survival of the patient depends on their use. Nevertheless, the patient and persons handling the agent should be protected.

REPORT OF A CASE

The patient, a 62 year old white man, had been given a diagnosis of chronic lymphatic leukemia. He had had all the usual methods of therapy without resolution of his disease and was then given radioactive isotope therapy. For several months the patient's leukemia was controlled by this method alone.

Radioactive yttrium chloride, Y^{90} (yttrium-hydroxy citrate complex), was administered. A dose of 0.2 cc. or less of this

Fig. 2.—The same area shown in figure 1 after surgical dissection and split thickness graft.

colloidal preparation was given intravenously in this instance, and some was accidentally deposited in the perivascular tissues of the forearm. It was estimated that over a period of eight weeks 100,000 r of beta radiation acted on approximately 1 cc. of tissue at the level of the cubital vein.

The reaction arose within forty-eight hours, but the patient did not return for observation until seven days later. Blood studies proved that he had chronic lymphatic leukemia and that only the use of radioisotopes might be effective.

Approximately twenty-one days after treatment, the local area was partially excised. An ulcer remained, and forty-two days later a further excision was done and the tissue studied. Local dressings of penicillin ointment were applied without improvement.

The patient was first seen on our service eight weeks after he had received an injection, with an ulcer 2 cm. in diameter in the center of an inflammatory area 5 cm. in diameter (fig. 1). The ulcer was gray, with no granulations. Two veins appeared as white, chalky strands in the center. After three days of local treatment with sodium chloride solution, the border inflammation was reduced to 2 cm. in diameter and further improvement seemed unlikely. A film placed over the ulcer produced no fogging.

Excision of this area was advised by the physicist and the physician because of fear of chronic ulceration and prolonged healing and because of persistent pain. Prior to the operation the reasons for excision were discussed with the patient.

After excision down to the median nerve, which was shifted and buried in normal muscle sheaths, a thick split graft was used to cover the defect. Since there was no loss of function and the penetration of yttrium 90 is stated to be 1 cc. of tissue (this agent "has absolute limited range of beta radiation"), we felt that surgical treatment should not be too radical.

A good take covered most of the ulcer area, but there was a loss over a deep groove in the area of greatest tissue destruction. This was thought to be due to reduced circulation by radiation damage, postoperative hemorrhage and/or lack of adequate graft perforations in this area. Thirty-one days later all areas healed.

We have been told that similar material is now being injected into tumors locally, as a possibly effective attack on certain

neoplastic growths. In this case the highly potent agent had been given in a small amount (0.2 cc.) in a tuberculin syringe. It is our advice, and that of other authors that intravenous drip be in use before the active agent is introduced, preferably with a large needle, and that children and fat or difficult persons be treated only by those who are especially trained in venipuncture.

Should the active agent be spilled in great concentration on the skin or outside the vein, the operator should ascertain the dosage and determine the probable amount of destruction—the depth and the anatomically important structures involved. Excision and study of the tissue and its radioactivity should then be done. The excised area should be studied with a Geiger counter; the need for further excision and split graft or pedicle graft should be determined in each case.

SUMMARY AND CONCLUSION

A case of accidental extravasation of a highly radioactive isotope is presented. The area was excised and successfully grafted after the lesion had been present eight weeks. A direct pedicle is preferable in these cases, if all the radioactive tissue can be excised. Immediate excision and replacement give the best result.

Suggestions are presented for future protection of the patient. Doctors should learn to recognize and treat lesions caused by radioactive isotopes.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

The following report has been adopted for publication by the Council on Physical Medicine and Rehabilitation. The valuable assistance of the Advisory Committee on American Health Resorts is appreciated by the Council. The membership includes: Drs. F. A. Hellebrandt, M. B. Jarman, Frank H. Krusen, Walter S. McClellan and Euclid M. Smith. This group was formerly known as the Committee on American Health Resorts of the American Medical Association. By order of the Board of Trustees of the American Medical Association, the Committee was placed under the auspices of the Council. Its name was changed to Advisory Committee on American Health Resorts.

The Council on Physical Medicine and Rehabilitation regards a health resort as an institution for rehabilitation, and its consideration of individual institutions is thus limited. The Advisory Committee and the Council consider primarily the physical therapeutic facilities of a health resort, such as the adequacy of the bathhouse and physical therapy equipment and the presence of medical direction and qualified personnel. The Council or Committee does not pass on hotel facilities. If a hospital or a clinic is operated in connection with a health resort, these medical institutions are inspected and, if eligible, listed by the Council on Medical Education and Hospitals.

HOWARD A. CARTER, *Secretary.*

HEALTH RESORT AT THE ARMY AND NAVY GENERAL HOSPITAL ACCEPTED

Location: Army and Navy General Hospital, Hot Springs National Park, Reserve Avenue, Hot Springs, Ark.

The hospital is located in the Hot Springs National Park, which comprises 1,006 acres (4.1 square kilometers). It has 410 hospital beds. This hospital is the Army and Navy headquarters for the treatment of arthritis. The hospital is approved by the Council on Medical Education and Hospitals of the American Medical Association. Part of the hospital functions as a health resort. Evidence was obtained that the requirements set up by the Advisory Committee on American Health Resorts were satisfied.

The resort is well managed and is under good medical supervision.

The Council on Physical Medicine and Rehabilitation voted to include the Army and Navy General Hospital at Hot Springs, Ark., in its list of accepted health resorts.

THE BUIE HEALTH RESORT ACCEPTED

Address: The Buie Health Resort, 315 Coleman, Marlin, Texas.

The Buie Health Resort of Marlin, Texas, applied for listing and was duly investigated. The Advisory Committee on American Health Resorts of the Council on Physical Medicine and Rehabilitation is satisfied that the Buie Health Resort is being operated in accordance with its rules. The Council has accepted the Buie Health Resort for listing.

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.

HOWARD A. CARTER, *Secretary.*

RADIOEAR ALL-MAGNETIC MODEL 55 HEARING AID ACCEPTED

Manufacturer: E. A. Myers & Sons, 306-308 Beverly Road, Pittsburgh 16.

This hearing aid is housed in a plastic case measuring 115 by 63 by 25 mm. The general form is rectangular, but the edges are rounded and, instead of a grill, there is a solid piece that projects forward about 4 mm. in front of the microphone. The sound reaches the microphone through two lateral slits in the sides of the projecting portion. It is claimed that this arrangement gives appreciable directional pickup for higher frequencies that is useful in locating the source of a sound.

Radioear All-Magnetic Model 55 Hearing Aid

The Model 55 Radioear is equipped with an inductive telephone pickup coil that is used when the wearer is talking over the telephone. The firm claims that this same inductive pickup coil may be used in theaters equipped with an inductive radiating system.

The lower half of the back opens on hinges to expose the battery compartments. Weights: Case with its contents except batteries, 163 Gm.; batteries, 75 Gm., and air conduction receiver with cord, 11 Gm. A bone conduction receiver is available.

Evidence obtained from a source acceptable to the Council indicated that this instrument is well constructed and performed as claimed by the manufacturer. The Council on Physical Medicine and Rehabilitation voted to include the Radioear All-Magnetic Model 55 Hearing Aid in its list of accepted devices.

COOPER LATEX DIAPHRAGM ACCEPTED

Manufacturer: Whittaker Laboratories, Inc., 898 Washington Street, Peekskill, N. Y.

The Cooper Latex Diaphragm is a contraceptive device made from rubber latex applied over a cadmium-plated coil spring. There are ten sizes, the diameters of which range from 50 mm. to 100 mm. in 5 mm. gradations.

Evidence was obtained from sources acceptable to the Council that the specimens submitted satisfied the published requirements of the Council for acceptance of contraceptive devices. The Council on Physical Medicine and Rehabilitation voted to include the Cooper Latex Diaphragm in its list of accepted devices.

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SATURDAY, JUNE 10, 1950

CIVIL DEFENSE A CIVILIAN RESPONSIBILITY

Opinion has been expressed in some instances that civil defense preparations are entirely the responsibility of the military. This was a cause for concern at a recent meeting of the Council on National Emergency Medical Service. Representatives of the Department of Defense and the National Security Resources Board emphasized that the primary responsibility for civilian defense must be assumed by civil government, that in time of war the Armed Forces must be free to concentrate on their primary missions of repelling attack and carrying the war to the enemy. Since civilians must perform the necessary civil defense functions, they should be responsible, at all levels of government, for the required planning and preparations. Effective community action during a wartime disaster will depend largely on this peacetime development of a sense of community responsibility for self preservation.

Concern was also expressed at the lack of general realization that civil defense preparations must be undertaken by not only the metropolitan but the less populated areas of the nation. Maine not only has enacted civil defense legislation that would enable it to furnish assistance to other states if necessary but also has formulated plans whereby supplies and personnel—including physicians—may be dispatched to areas where resources have been overwhelmed by disaster. The fact that 32 state and territorial medical societies, after notification that this meeting of the Council on National Emergency Medical Service would be concerned solely with the medical aspects of civil defense, sent representatives indicates an awareness of the urgent need for immediate initiation of preparations for civilian protection. This answers charges from those who maintain that the medical profession has lost sight of its responsibilities in civil defense fields.

An impressive aspect of this meeting boding well for the future, since it embodies one of the cardinal principles of civil defense, was the obviously sincere desire of those present, whether they represented state medical societies, allied professional associations or agencies of federal or state governments, to share knowledge and experiences in what was realized to be a common task —self preservation on a nationwide scale. As a result, especially of the recounted experiences of the medical societies of the Territory of Hawaii, the District of Columbia and the states of Georgia and Maine, it was possible to formulate definite suggestions which would assist state medical societies in planning and organizing similar programs. In the same manner, plans were developed whereby state societies may soon aid their individual members in the acquisition of factual knowledge concerning the newer warfare agents.

The representatives of state medical societies that have organized civil defense programs stressed the absolute necessity of certain prerequisites to such programs and recommended for immediate action: The formation of emergency medical service committees by state medical societies that have not yet done so; urging by the medical profession, through state medical societies, of the governors of those states not possessing adequate civil defense enabling legislation to recognize the importance of such legislation; urging governors to appoint state directors of civil defense, to whom should be delegated the necessary authority and responsibilities, and requesting governors to appoint health services civil defense advisory councils to the civil defense directors, since intelligent planning is impossible without competent medical and allied professional advice and guidance. Such programs should go far in the recognition and utilization of the responsibilities and capabilities of the medical profession in times of emergency.

INCREASE OF TUBERCULOSIS—APPARENT OR REAL

The mortality rate from tuberculosis has shown an annual decrease in the United States for many years. At this moment it is probably lower than that of any other nation, including those of only a few million population. In the last few years, however, there has been an increase in the number of cases reported to health authorities. The question is being asked as to whether this is an apparent or real increase in morbidity.

Edwards and Drolet [1] recently emphasized that the number of deaths decreased from 60,428 in 1940 to 48,064 in 1947 and to 43,529 in 1948, with mortality rates per 100,000 population of 45.8, 33.5 and 30, respectively. During the same years the numbers of cases reported to official agencies increased. In 1940, there were 100,772 (morbidity rate 76.4 per 100,000 population), in 1947, 133,837 (rate of 93.3)

1. Edwards, H. R., and Drolet, G. J.: The Implications of Changing Morbidity and Mortality Rates from Tuberculosis, Am. Rev. Tubere. **61**: 39, 1950.

and in 1948, 145,131 new cases reported. Thus, an impressive divergence between mortality rates and case rates is evident.

Mass roentgen ray surveys and diagnoses made from shadows alone have been responsible for a number of persons being reported as tuberculous who did not have the disease. Among 20 million persons examined for military service, about 200,000 were rejected because of questionable shadows in chest roentgenograms, a great many of which were considered due to tuberculosis and were reported to state health departments. In some places these rejectees, after returning home, were carefully examined to determine accurate diagnoses. For example, among 1,109 such persons in Wayne County, Michigan, Hudson and Brachman [2] found that only 10.3 per cent had tuberculosis requiring treatment. In three Illinois counties, Collins [3] found that, among 159 rejected for tuberculosis, only 4.4 per cent had clinically significant disease. In Illinois, 7,379 persons were rejected because of tuberculosis,[4] of whom 4,188 were adequately examined prior to Sept. 1, 1945. Only 9.3 per cent were found to have active tuberculosis. In Minnesota,[5] from 1942 to 1945 there were 1,490 persons disqualified for military service because of roentgen shadows thought to represent tuberculosis. On adequate examination 520 of them had previously been reported. Among the remainder, only 124 were found to have tubercle bacilli in the sputum or gastric washings. Probably the highest figure reported was in New York, where Edwards [6] found that about 39 per cent of those rejected for tuberculosis actually had this disease in clinical form. This may have been because of greater caution used in recording at induction centers. It is believed that, in the country as a whole, not more than 10 to 15 per cent of the persons rejected and reported to health departments really had clinically significant tuberculosis. The others had shadow-casting lesions with a wide variety of causes. Doubtless some such shadows represented tuberculous lesions which had long since been brought under control by nature.

During and since the war, millions of civilians have had roentgenographic inspections of the chest (about 14 million in 1949 alone). Despite numerous strenuous efforts, including those of the United States Public Health Service,[7] to prevent diagnoses being made from roentgen shadows alone, the unfortunate practice has continued in many places. Thus the percentage of actual cases reported in such circumstances probably is no higher than among the rejectees for military service. There is no doubt that such erroneous reporting of cases has contributed to an apparent and not a real increase in tuberculosis.

This does not discredit the mass survey technic. Even if only a small percentage of shadows found represent progressive tuberculosis, its value is obvious. Discovery of such lesions by this method adds to the number of cases reported. However, this is not necessarily an indication that the disease has become more prevalent. It means only that existing but often unsuspected cases have been found.

Unquestionably as a result of World War II there has been a real increase in tuberculosis in the United States far beyond that reflected in the recent increases in morbidity. During and since the war several million persons in the military services were sent abroad. Many of them were in areas where large numbers of cases of contagious tuberculosis existed among the citizenry; hence, infections and reinfections with tubercle bacilli occurred. It was known before the war that in the United States a small percentage of persons from 18 to 22 years had been infected with tubercle bacilli. However, among those who were abroad and returned to this country and entered or reentered colleges and universities, the incidence of infection was higher than before the war. In one university, where the incidence of tuberculin reactors was 6.4 per cent on entrance in 1945, it was 19.3 per cent in 1947, when there was a large influx of exservice students. Many in this school who had been tested periodically with tuberculin and were nonreactors before leaving for military service returned as reactors. From evidence available it seems probable that primary tuberculous lesions developed in several hundred thousand while abroad. Each of these persons brought back lesions containing virulent tubercle bacilli. These persons are now widely scattered throughout the country.

Insufficient time has elapsed for many lesions to mature to fatal termination, and, therefore, the increase in tuberculosis as a result of war is not yet noticeably reflected in mortality rates. In fact, symptom-producing clinical lesions have developed in a small percentage, but such lesions are certain to appear in a considerable number of the remainder. Thus, there already is and will continue to be an increase in the incidence of clinical tuberculosis in this country as a direct result of the war. Many who were infected before the war were exogenously reinfected after induction in their various sojourns outside this country, and there probably will be more clinical cases among them because of this reinfection than would have occurred had they remained at home.

The exact percentage of persons infected with tubercle bacilli who later have clinical tuberculosis is not known. Bogen [8] believes it is as high as 50 per cent. In countries where tuberculous infection is universal

2. Hudson, W. A., and Brachman, D. S.: A Study of Rejectees for Thoracic Abnormalities, Dis. of Chest **10**: 234, 1944.
3. Collins, L. L.: Tuberculosis Control Depends upon the Practicing Physician, Journal Lancet **66**: 103, 1946.
4. Shahan, W. P.: Personal communication to the author.
5. Marcley, W. J.: Personal communication to the author.
6. Edwards, H. R.: Personal communication to the author.
7. Hilleboe, H. E.: Guide for Distribution of Persons with Abnormal Pulmonary Findings on X-ray Film, Pub. Health Rep. **61**: 1759, 1940. Weber, F. J.: A Problem in Mass Surveys, Pub. Health Rep. **62**: 1709, 1947.
8. Bogen, Emil: The Toll of Tuberculous Infection, Am. Rev. Tuberc. **42**: 253, 1940.

by the age of 15 to 18 years, one fourth to one third of the total deaths from all causes are due to tuberculosis. In addition to those who die, large numbers have clinical lesions from which they recover. In any event, all persons who fall ill or die from clinical tuberculosis are derived from the infected (tuberculin reactors) segment of the population. Nothing now available can prevent clinical lesions from developing among those infected and reinfected while in military service. Nevertheless, much could be done if all exservice persons whose tissues are sensitive to tuberculin were located and examined periodically. In this manner those destined to have chronic, contagious pulmonary disease would be found while still in the asymptomatic and noncontagious stage. If this is not done and the infected are allowed to become contagious in their communities, the real increase of tuberculosis in this country will gain momentum.

Another real increase in tuberculosis in the United States has its source among displaced persons from those countries where nearly all adults have primary lesions and hence are tuberculin reactors. With several hundred thousand such persons being admitted to the United States, tremendous numbers of tubercle bacilli are being brought with them. Among these persons one must expect a constant supply of cases of clinical tuberculosis, just as would have occurred had they remained in their native countries. Even if everyone had a clear roentgenogram of the chest at the port of embarkation or on arrival in America and no other evidence except a tuberculin reaction, clinical tuberculosis is certain to evolve in many of them. There can be no doubt that such lesions among displaced persons have already contributed to the real increase in reported cases of tuberculosis in the United States, and this may be expected to continue unless drastic action is taken at once to find those who already have contagious disease and to keep all others under close observation for development of the disease.

Adamson and Edmison[9] made a study of 2,876 Polish soldiers who were brought to Canada late in 1946. They had formed a part of a Polish force which had fought with the British in Italy, North Africa, Russia and Sicily. On arrival in Canada, they were sent to various provinces to be placed in agricultural work. When later examined, 84 had pulmonary tuberculosis, 4 had pleurisy with effusion and 1 had Pott's disease. This was about 3 per cent of the total, which was 10 times greater than the amount of tuberculosis found among Canadians recruited for the war. Of the 84 pulmonary cases, 39 were classified as moderately or far advanced, 32 men had active tuberculosis, 6 quiescent, 24 arrested and 22 "healed." The authors believe it is likely there was less tuberculosis among this group than would be found in a random sample from middle Europe. These men had lived through years of arduous army life and they had been examined in England before leaving for Canada. Thus, the weak and those with advanced disease had probably been screened already from the group. On arrival in Canada they appeared healthy. Adamson and Edmison call attention to the health hazard involved in immigration, which, if proper precautions are not taken, may result in the introduction of "an enormous amount of tuberculosis."

This problem, with reference to human tuberculosis, is identical with that which the veterinarians experienced among animals several decades ago. They found that in sleek and healthy-appearing animals purchased in Europe contagious tuberculosis often evolved after they were transported to America, just as would have occurred had they remained in Europe. They solved the problem by admitting no tuberculin-reacting animal, no matter how healthy in appearance, from any country. Tuberculin is just as specific in the detection of tuberculosis in persons as in animals.

The best possible roentgen inspections detect only gross lesions in the 75 per cent of the lungs visualized. Those which are not macroscopic and those in parts of the lungs not visualized and all other locations of the body are missed. These are the lesions which are now evolving, and others will later evolve, in the bodies of persons who appeared healthy and had clear roentgenograms on return from military service and among displaced persons on arrival.

Tuberculosis must be expected to continue to increase in this country for some time unless all who have returned, those who later return from military service abroad, all displaced persons here now and those who subsequently enter are tested with tuberculin and the reactors carefully examined periodically. Roentgen inspection of the chest should be made at least once every six months. This will detect most of the chronic clinical lesions in the lungs before they are contagious. While this will increase the number of reported cases in this country, infected persons will not be permitted to disseminate their tubercle bacilli at large. If this is not done, the increase in tuberculosis in the United States may become enormous within the next 10 or 15 years.

There is no scientific evidence to support an often quoted theory to the effect that the citizenry of this country is in greater danger from exposure to these increasing sources of infection because so many adults have never previously been infected with tubercle bacilli. Where actual observations have been made, those who first became infected in adulthood have exhibited the same defense mechanism as those infected in childhood. Nevertheless, a problem of great magnitude for the moment and the immediate future consists of preventing dissemination of tubercle bacilli to insure a continuous decrease in the number of infected persons.

9. Adamson, J. D., and Edmison, J. N.: Immigration Tuberculosis, Canad. M. A. J. 57: 432, 1947.

UNILATERAL EXERCISE

Unilateral progressive resistance exercise has been shown to augment the strength and endurance of the limb exercised and also of the unexercised contralateral extremity.[1] Previously published reports had mentioned this phenomenon and had served to draw attention to the possibility of cross education of extremities if the patient would cooperate and was properly trained. A recent report [2] presents additional data on the influence of exercise on work capacity.

The restoration of function when loss of strength and endurance is the primary cause of the physical disability depends on systematic exercise in the "overload" zone. The amount of work performed must exceed that normally performed with ease. Furthermore, the voluntary cooperation of the patient is essential. To overcome fear of pain, unconscious malingering and other retarding factors, simple and readily accepted methods of augmenting work output are important.

Hellebrandt and Houtz [2] postulated that the contraction of homologous parts might be sufficiently dynamogenic to excite the weaker side to increased effort since vigorous unilateral exercise elicits associated movements or increased tone in symmetrically disposed muscle groups. To study the influence of bimanual exercise on the work capacity of the weaker extremity, they performed 52 experiments consisting of 962 unilateral and 268 bilateral exercise bouts on 29 apparently normal healthy adults. Nine were excluded subsequently because cessation of exercise seemed without adequate evidence of fatigue. Other discerning criteria reduced the group of experiments to 32 performed on 20 subjects, 5 men and 15 women.

Selected muscle groups of the right and left upper extremity were subjected alternately to identical stress until the weaker of the two sides failed to accomplish the requisite number of contractions against a prescribed load in an assigned rhythm. The dominant limb then was made to contract synchronously with the one which had failed. The work was performed to the rhythm of an audiovisual metronome. Each period of exercise was followed by a period of rest.

The researchers concluded that comparison of the total work performed in the failing bout with that achieved during the contraction of the dominant hand indicated that bimanual exercise was significantly dynamogenic. They also concluded that revival in strength produced by bilateral exercise augmented endurance and enhanced contractile power.

The application of these observations to medical practice offers interesting speculation, especially in the field of physical medicine. As Hellebrandt and Houtz point out, it has long been known that forceful tonic contraction of the normal arm of a patient with hemiplegia produces associated movements in the paralyzed contralateral extremity. And the affected side of a child with infantile spastic hemiplegia involuntarily executes movements similar to those produced in the normal extremity, although the child cannot voluntarily produce such movements solely in the spastic limb. Other diseases show similar phenomena. The authors thus have concluded that return of neuromuscular function following injury or disease may depend on volitional exercise which must exceed work levels easily reached. More research in this field certainly seems indicated.

1. Hellebrandt, F. A.; Parrish, A. M., and Houtz, S. J.: Arch. Phys. Med. **28**: 76, 1947.
2. Hellebrandt, F. A., and Houtz, S. J.: Influence of Bimanual Exercise on Unilateral Work Capacity, J. Applied Physiol. **2**: 446 (Feb.) 1950.

Current Comment

SYNTHESIS OF VISUAL PURPLE

Almost three quarters of a century ago, experiments were described [1] showing that the phenomenon of sight by the vertebrate eye is accompanied with a remarkable series of photochemical reactions. When light strikes the visual purple from the rods of the retina the pigment is bleached, yielding first a yellow substance and later a colorless material. In the dark, the process appears to be reversed and visual purple is regenerated. In 1935 Wald [2] pointed out that visual purple is dissociated by light into a carotinoid pigment known as retinene and a protein. If exposure to light is continued, colorless products are formed, among which is vitamin A. Thus two older observations are explained, namely, the influence of vitamin A on dark adaptation and the high vitamin A value of retinal tissue in feeding experiments.[3] Recently new experiments [4] have been carried out supporting Wald's views on the nature of visual purple. Synthetic retinene was prepared by the oxidation of vitamin A, and this was combined with rhodopsin-protein to produce visual purple, which was shown by physical measurements and by biochemical behavior to be identical with the natural visual purple. In these laboratory transformations, the efficiency of the resynthesis of visual purple is far below that taking place in the intact eye. But it was found that, when retinene and rhodopsin-protein were supplemented with pigment layer tissue and with coenzyme I, the yield of visual purple was greatly augmented. Although the experimental models still fall short of the efficiency attained in the intact eye, it is clear that the foregoing observations extend our knowledge of the integration of radiant and chemical energy in the function of vision. Moreover, they corroborate the practical conclusion that vitamin A is essential for both the integrity of the periocular tissues and the maintenance of the visual cycle.

1. Kühne, W., in Hermann, L.: Handbuch der Physiologie, Leipzig, F. C. W. Vogel, 1879, vol. 3, p. 235.
2. Wald, G.: J. Gen. Physiol. **19**: 351, 1935; Science supp. 11 **82**, 1935.
3. Holm, E.: Acta ophth. **7**: 146, 1929.
4. Wald, G., and Brown, P. K.: Proc. Nat. Acad. Sc. **36**: 84 1950; Wald, G., and Hubbard, R.: ibid. **36**: 92, 1950.

WASHINGTON NEWS

Cabinet Rank Department of Health

President Truman's Reorganization Plan 27, to create a cabinet rank Department of Health, Education and Security, is essentially the same proposal he made last year, which the American Medical Association opposed and the Senate vetoed Aug. 16, 1949, by a vote of 60 to 32. It would raise the Federal Security Agency to department status, thereby increasing the prestige of the director of these activities and allowing him, as a full secretary, to sit in at cabinet meetings. The President is repeating his request that he be allowed to move all health, education and social security activities of the present FSA into the new department, where the chiefs of these branches would be directly answerable to the department secretary, who would "thus be in a position to transmit their views to the President and the Congress."

The plan will become law on July 31 of this year unless, prior to that date, either Senate or House votes it down by a constitutional majority—a majority of all members, not just those in attendance at the time of the vote. In submitting the plan to Congress, Mr. Truman stated: "The present plan is designed to meet the objections which were raised in opposition to the 1949 plan when it was disapproved by the Senate." However, a comparison with last year's plan shows that, as regards health activities, the changes have been minor and of a technical, not a substantive, nature. Specifically, the title of the new department under this year's plan would be "Health, Education and Security," rather than Department of Welfare, and statutory authority of the Surgeon General would be carried over into the new department, whereas last year this transition of authority was only implied.

Frank Pace, then Director of the Budget, endorsed the plan, but told the Senate committee not to "expect that there would be a marked saving." Oscar Ewing, then and now FSA Administrator, said that, if he should be named to the higher office of Secretary, he would in no way relent his advocacy of compulsory health insurance, because "I believe in it." Mr. Ewing is still regarded as the leading candidate for the Secretary's job if the present plan goes through.

Of the veterans associations, only one, Veterans of Foreign Wars, testified. Its spokesman endorsed the plan. The spokesman for the American Pharmaceutical Association also supported the idea. Dr. George F. Zook, a former president of the American Council on Education, who said he represented the "educational organizations of the United States," also endorsed the plan. (However, the attitude of educational organizations toward the present plan now is in doubt. A few weeks ago a group of six national educational organizations gave their support to a bill (H. R. 8161) which would make the Office of Education an independent agency. One of the sponsors said the idea was to get the office "out from under the political control" of the FSA Administrator. The backers of the plan for an independent education agency included the National Education Association.)

Organizations joining with the American Medical Association last year in opposing a Welfare Department included the American Association of Physicians and Surgeons and the Arkansas Medical Society. Dr. James A. Miller, Chairman of the Executive Committee of the A. M. A. Board of Trustees, argued against the plan because the Association is strongly in favor of a federal Department of Health, with a doctor of medicine as Secretary. He made these points: 1. "The health of the people is certainly important enough to warrant an independent health agency." Less than 5 per cent of the population is engaged in farming, but there is a Department of Agriculture; less than 35 per cent is engaged in commerce and labor, but there are departments of Commerce and Labor. One hundred per cent of the population is vitally concerned with matters of health.

2. Health, welfare and social security would create an administrative task "impractical and too important for one man to supervise properly" in a cabinet rank department.

3. In another depression, expansion of relief activities logically would occur in the proposed department. In such an event, "the health functions of the proposed department, being overshadowed by the emergency activities, would be slighted and the health of the nation would suffer."

While testifying at the hearing last year, Senator Taft said he had observed that the Surgeon General and the heads of education and social security apparently were being "throttled" by the FSA Administrator, which condition he said would become worse with the creation of a department. He also said he was convinced that if the plan went through there "never will be a United Medical Administration," as recommended by the Hoover Commission.

In the Senate, Reorganization Plan 27 is now before the Expenditures Committee, whose members are: Democrats—McClellan of Arkansas (chairman), Eastland of Mississippi, Hoey of North Carolina, Benton of Connecticut, O'Conor of Maryland, Humphrey of Minnesota, Leahy of Rhode Island; Republicans—McCarthy of Wisconsin, Ives of New York, Mundt of South Dakota, Mrs. Smith of Maine, Schoeppel of Kansas and Vandenberg of Michigan.

Members of the House Expenditures Committee, which also has the plan before it, are: Democrats—Dawson of Illinois (chairman), Holifield of California, Lanham of Georgia, Hardy of Virginia, Karsten of Missouri, McCormack of Massachusetts, Bonner of North Carolina, Sadowski of Michigan, Huber of Ohio, Blatnik of Minnesota, Donohue of Massachusetts, Wagner of Ohio, Bolton of Maryland, Burnside of West Virginia, Bolling of Missouri, Tauriello of New York and Shelley of California. Republicans—Hoffman of Michigan, Rich of Pennsylvania, Riehlman of New York, Harvey of Indiana, Halleck of Indiana, Lovre of South Dakota and Pfeiffer of New York. Democratic-Liberal; Roosevelt of New York.

Unauthorized Census Procedures

Reports to the Washington Office of the American Medical Association indicate that some census enumerators have followed unauthorized procedures in interviewing physicians. The enumerators in some cases have told the physician not to report hours worked in excess of 60 per week. Lowell Galt, head of the Census Bureau's field division, told A. M. A.: "Enumerators have received no such instructions. They have been instructed to report all work done the previous week, on the forms that call for this information. In professional work this means hours spent at the profession and is not limited to time spent in actual consultation or treatment."

Although the bulk of the enumerating has been completed, Mr. Galt said the Bureau is anxious to hear from any physicians who have had this experience with enumerators, so records may be corrected. District Census superintendents should be contacted. If the district offices have been closed out, write to Mr. Galt's office in Suitland, Md.

Prescriptions

Officials of Food and Drug Administration have told THE JOURNAL'S correspondent that, contrary to some published reports, they have not entered into a "gentlemen's agreement" to overlook certain violations of the prescriptions code. These reports suggested that FDA had made unwritten commitments not to prosecute in cases where legitimately issued prescriptions are refilled without a physician's authorization. FDA insists that it is not prosecuting these cases only because it does not have a large enough staff to handle all possible violations. The administration officials said that for the present they are concentrating on cases where potent or habit-forming drugs are sold without a physician's prescription, because these cases represent the greater danger to the public.

ORGANIZATION SECTION

Official Notes

THE WORLD MEDICAL ASSOCIATION

The Council of the World Medical Association held its mid-year meeting in Copenhagen, Denmark, April 24-28, 1950.

The United States was represented by the following physicians: Dr. Elmer L. Henderson, president-elect of the World Medical Association, Dr. Roscoe L. Sensenich, member of the council, Dr. Morris Fishbein, editor of the *World Medical Association Bulletin* and Dr. Louis H. Bauer, secretary general of the association.

Other countries represented at the meeting were: Belgium, Canada, Cuba, Denmark, France, Great Britain, India, Spain and Switzerland.

Plans for the fourth general assembly of the association, to be held in New York City Oct. 16 to 20, 1950, were discussed.

Reports were received on the progress in organizing national medical associations in countries not now having them. Discussion also took place on relationships with UNESCO and the World Health Organization (the latter organization sent an observer to the meeting).

The World Medical Association is jointly interested in and cooperating with the World Health Organization on: (1) university and postgraduate medical studies, including training of auxiliary personnel, (2) quarantine regulations, (3) unification of pharmacopeia and (4) human rights.

Committee reports were received from the committees on Social Security, Medical Education, Medical Care, Relationship of the Medical Press to the World Medical Association, and Nomenclature. New subjects discussed and placed on the agenda for continuing investigation were: (1) standardization of medical gas cylinders, (2) simplification of medical forms and certificates and (3) publication of a book on conditions under which medical and dental practitioners registered or legally qualified in their own countries may practice abroad.

Two resolutions were adopted:

1. Whereas various governments, formerly Germany and more recently Russia, have endeavored to control the traditional freedom of science by dictating judgments on such biologic and medical questions as genetics, anthropology and even physiology in order to make them serve political ends, and

Whereas, medical science owes its progress to the unhampered exercise of the free investigative spirit, and

Whereas, medical science, like all other sciences, must be wholly detached from politics if it is to retain its vitality and its validity, and

Whereas, international peace can be assured best when all countries enjoy the physical health which is prerequisite to a firm national economy, and

Whereas, a medical profession basing its services on objective research can contribute greatly to global health and world peace by fostering the international cooperation of all its members, therefore,

Be it Resolved, that this council of the World Medical Association, acting through the association's component national medical bodies, enlist each of the approximately 500,000 physicians represented by them to promote, conscientiously and with unflagging zeal, all those principles that contribute to the free pursuit of scientific truth and the free exercise of their professional skill.

2. Whereas, the council of the World Medical Association believes that the practice of euthanasia is contrary to public interest and to medical ethical principles as well as to natural and civil rights, and

Whereas, such practice is contrary to the spirit of the Declaration of Geneva, therefore,

Be it Resolved, that the council of the World Medical Association in session at Copenhagen, Denmark, April 24-28, recommends to the national medical associations that they condemn the practice of euthanasia in any circumstances.

Although the World Medical Association has been organized less than three years, it has the following list of accomplishments to its credit:

1. Membership, national medical associations of 40 countries.
2. Adoption of a modified Hippocratic Oath already approved by several organizations.
3. Adoption of an International Code of Ethics.
4. Investigation of medical education in 26 countries.
5. Investigation of social security as it affects medical practice in 24 countries.
6. Investigation of cult practice in 24 countries.
7. Investigation of medical advertising in 23 countries.
8. Investigation of postgraduate medical education in 32 countries (completed and about to be printed).
9. Investigation of the status of the medical profession and medical man power in 23 countries.
10. *Bulletin of the World Medical Association* (quarterly). All publications are printed in three languages, English, French and Spanish.
11. Arrangements for medical contacts by physicians traveling in foreign countries.
12. Arranging lectures by physicians traveling in foreign countries.

STUDIES IN PROGRESS

1. Investigation of hospital facilities in the various countries.
2. Investigation of certain pharmaceutical problems in the various countries.
3. Continuing studies on 4, 5, 6, 7, 8 and 9 in the first list to keep them up to date and cover countries not included in first studies.

Coming Medical Meetings

American Medical Association, San Francisco, June 26-30. Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

American Association for the Surgery of Trauma, Salt Lake City, June 22-24. Dr. Charles G. Johnston, 1512 St. Antoine St., Detroit 26, Secretary.

American College of Chest Physicians, San Francisco, June 22-25. Mr. Murray Kornfeld, 500 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, San Francisco, June 25. Mr. William C. Stronach, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

American Dermatological Association, Jasper National Park, Alberta, Canada, June 18-22. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Diabetes Association, San Francisco, Hotel Whitcomb, June 24-25. Dr. John A. Reed, 1 Nevins St., Brooklyn 17, Secretary.

American Hearing Society, Chicago, Drake Hotel, June 15-17. Mrs. Frances E. Lee, 817 Fourteenth St., N.W., Washington 5, D. C., Secretary.

American Heart Association, San Francisco, Fairmont Hotel, June 22-25. Dr. John J. Sampson, 1775 Broadway, New York 19, Secretary.

American Medical Women's Association, Carmel, Calif., June 20-22. Dr. Grace Talbott, 909 Hyde St., San Francisco 9, Secretary.

American Neurological Association, Atlantic City, Claridge Hotel, June 12-14. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Proctologic Society, Los Angeles, July 1-5. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Society for the Study of Sterility, San Francisco, Sir Francis Drake Hotel, June 24-25. Dr. John O. Haman, 490 Post St., San Francisco 2, Secretary.

Association for the Study of Internal Secretions, San Francisco, June 23-24. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Conference of Presidents and Other Officers of State Medical Associations, San Francisco, Palace Hotel, June 25. Mr. John E. Farrell, 106 Francis St., Providence, R. I., Secretary.

Medical Library Association, Boston, June 19-22. Miss Helen Hlavac, 209 East 23d St., New York 10, Secretary.

Montana State Medical Association, Bozeman, Gallatin County High School, July 9-12. Dr. Herbert T. Caraway, 115 N. 28th St., Billings, Secretary.

Western Association of Industrial Physicians and Surgeons, San Francisco, June 25. Dr. Christopher Leggo, C. & H. Sugar Refining Corp., Crockett, Calif., Secretary.

West Virginia State Medical Association, White Sulphur Springs, The Greenbrier, July 27-29. Mr. Charles Lively, P. O. Box 1031, Charleston 24, Executive Secretary.

International Meetings

International Anatomical Congress, Oxford, England, July 25-28. Secretary, Miss A. M. Maynall, Department of Human Anatomy, University Museum, Oxford, England.

International Association for the Prevention of Blindness, London, England, July 17-21. Prof. P. Bailliart, 47 rue de Bellechasse, Paris, France, Chairman.

International Cancer Research Congress, Paris, France, July 17-22. Secretariat, 6 Ave. Marceau, Paris 8, France.

International Congress of Ophthalmology, London, England, July 17-21. Mr. Keith Lyle, 45 Lincoln's Inn Fields, London W.C.2, England, Secretary.

International Pediatric Congress, Zurich, Switzerland, July 24-28. Dr. L. Emmet Holt Jr., 477 First Ave., New York City 16, Secretary-General.

International Union Against Venereal Diseases, Zurich, Switzerland, July 29-Aug. 2. Dr. A. Cavaillon, Institut A. Fournier, 25 Blvd. St. Jacques, Paris 14em., France, Secretary.

GOVERNMENT SERVICES

PUBLIC HEALTH SERVICE

CONFERENCE ON WATER POLLUTION

Representatives of 22 of the nation's leading industries concerned with solving industrial waste disposal problems affecting the quality of the country's water resources concluded a two day conference with the Public Health Service, the Federal Security Administrator announced May 16. The May 9-10 meeting resulted in the establishment of a National Technical Task Committee on Industrial Wastes. The committee outlined an industry-federal government approach to the control of water pollution caused by industrial wastes, and set itself three immediate tasks: (1) to assemble a source list of existing processes and practices employed in using, treating and controlling industrial wastes, (2) to assemble a tabulation of research projects concerned with utilization, treatment and disposal of wastes—those underway and those contemplated—and (3) to provide a list which will define problems that confront a given industrial group and for which there is no satisfactory solution, particularly those which are common to more than one industry.

Louis F. Warrick, Division of Water Pollution Control, Public Health Service, was elected secretary of the committee.

The task committee also established four major "task groups" which will act as working committees to carry out the functions of the committee at large.

Task Group I.—Food Industries, which will consist of subcommittees representing the following industries: canning, dairy, corn, fermentation, distillers, beet sugar and meat.

Task Group II.—Mineral Products, consisting of the iron and steel, nonferrous metals, coal mining, other mining, petroleum, by-product coke and gas industry subcommittees.

Task Group III.—Chemical processing, consisting of chemical, textile, pulp, paper and paperboard, tanning, rubber, and electroplating industry subcommittees.

Task Group IV.—General industries, consisting of the automotive and electrical equipment manufacturing industries and the National Association of Manufacturers subcommittees.

Other interested industries were expected to join in the work of the national committee. The railroads, lumber, paint and varnish and power production industries, as well as the cane sugar, fish and poultry and food freezing industries, will be invited to join in the near future.

The committee appointed Earl Devendorf, director, Bureau of Environmental Sanitation, New York State Department of Health, to act as its liaison with the various state governments. Vernon G. MacKenzie, officer in charge of the Public Health Service's Environmental Health Center, Cincinnati, was made the committee's liaison with the Cincinnati laboratory.

The committee will meet in Cincinnati, in October, to acquaint itself with the activities of the Environmental Health Center. The Cincinnati laboratory will serve as a valuable source of information and technical assistance to those industries confronted with unfamiliar waste disposal problems.

MENTAL HEALTH COUNCIL

The National Advisory Mental Health Council, which met May 6-7 at the National Institutes of Health, Bethesda, Md., reviewed applications for research and training grants which totaled almost $8,000,000. The need for more professionally trained personnel in all phases of mental health work was indicated by the 289 training grant applications reviewed by the council. The council members pointed up the need for a greater knowledge of factors that are conducive to mental health as well as those producing mental illness. Tools to obtain this knowledge, however, are still inadequate.

Members of the council are: chairman—Dr. Leonard A. Scheele, Surgeon General, Public Health Service (ex officio); Dr. Franz Alexander, director, Institute for Psychoanalysis, Chicago; Dr. Leo H. Bartemeier, associate professor, department of psychiatry, Wayne University, Detroit; Dr. Karl M. Bowman, The Langley Porter Clinic, San Francisco; Dr. Alan Gregg, director of medical sciences, Rockefeller Foundation, New York City; Carlyle F. Jacobson, executive dean, division of health sciences and services, State University of Iowa, Iowa City, and Dr. S. Bernard Wortis, professor of psychiatry and neurology, New York University, New York City.

PERSONAL

Dr. Frank V. Meriwether has been named medical director of Region VI which has headquarters in Atlanta, Ga., and includes Alabama, Florida, Georgia, Mississippi, South Carolina, Tennessee, Puerto Rico and the Virgin Islands. He succeeds Dr. W. K. Sharp, who has been detailed to the Alabama State Department of Health.

Dr. Gilcin F. Meadors has been appointed chief of technical services at the National Cancer Institute. Dr. Meadors, prior to his assignment at the National Cancer Institute, was head of a heart disease epidemiology study in Boston.

Dr. Vincent E. Price, head of the Enzyme Unit-Bio-Chemistry Unit, National Cancer Institute, left this month for Cambridge, England, to work on the organic synthesis of nucleotides and other nucleic acid derivatives and intermediates.

Dr. George F. Batten, Assistant Surgeon, is leaving this month for an assignment to the American Consulate in Munich, Germany. Dr. Batten will perform medical and mental examinations of displaced persons who apply for visas to enter the United States under the Displaced Persons Act.

MISCELLANEOUS

INTERNS WANTED

The U. S. Civil Service Commission announces examinations for positions of medical officer (rotating intern and psychiatric, surgical and general practice resident) in St. Elizabeths Hospital, Washington, D. C. Salaries for rotating intern are $2,200 the first year and $2,400 the second year; for psychiatric resident and general practice resident, $2,000 to $4,150 a year, and for surgical resident, $3,400 to $4,150 a year. To qualify for these positions all applicants must have had appropriate education in an approved medical school. Applicants for psychiatric, surgical and general practice resident must also have completed a one year internship. In addition, applicants for surgical resident appointments must have completed a three year residency in surgery. No written test will be given. Information and application forms may be obtained from most first and second class post offices, from Civil Service regional offices or from the U. S. Civil Service Commission, Washington 25, D. C. Applications will be accepted until June 20, 1950, by the Committee of Expert Examiners, St. Elizabeths Hospital, Washington 25, D. C.

RESERVE OFFICERS

The Civilian Components Policy Board, Office of The Secretary of Defense, has authorized the departments of the Army, Navy and Air Force to suspend the automatic transfer of Medical Department reserve officers from the active to the inactive reserve for failure to meet the departmental requirements for retention on an active status. While not a statement of new policy, and intended only as an interim measure, it will nevertheless enable several thousand physicians who have been unable to earn the necessary point credits for retention in the active reserve to continue on an active status after July 1, 1950, until more permanent arrangements have been made.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Harvard Society Meeting.—A dinner meeting of the Harvard Medical Society of Southern California will be held July 6 at 6 p. m. at Harvard Club House, 234 S. Loma Drive, Los Angeles, to meet the dean of Harvard Medical School, Dr. George P. Berry, Boston. All interested medical school graduates may attend.

Resolution of State Pathologists.—At the recent annual meeting of the California Society of Pathologists the members went on record as being willing to perform examinations on indigent and semi-indigent patients, giving such service for no charge or at reduced rates whenever such consideration is warranted. This was a formal reiteration of the general attitude previously maintained by pathologists, indicating a willingness to assist in any activity or program intended for the benefit of all citizens.

CONNECTICUT

Arthritis and Rheumatism Association.—The Connecticut Arthritis and Rheumatism Association at its first annual meeting May 22 in New Haven elected Dr. LeMoyne C. Kelly, Waterbury, as its first president. Other officers elected include Drs. Denis S. O'Connor, New Haven, vice president, and Dr. A. Albert LaPlume, Bristol, secretary-treasurer.

IOWA

State Society Appoints General Manager.—The Iowa State Medical Society at its annual meeting in April named Dr. Ranson D. Bernard, Clarion, the association's first general manager. Dr. Bernard, president in 1946-1947, has retired from private practice and will make his home in Des Moines. Dr. Thomas F. Thornton, Waterloo, was installed as president, and Dr. Donald C. Conzett, Dubuque, was chosen president-elect, and Drs. George H. Scanlon, Iowa City, and Bush Houston, Nevada, first and second vice-presidents; Drs. George Braunlich, Davenport, and Julian E. McFarland, Ames, were named delegates to the American Medical Association.

KENTUCKY

Assistant Health Commissioner Resigns.—Dr. Tracy Jones, Louisville, assistant state health commissioner and director of county health work for the state health department, resigned effective June 1 to take up further study in public health and industrial medicine at John Hopkins University, Baltimore. His successor has not been selected.

Directory of Health and Recreation Agencies.—The new directory of health, welfare and recreation agencies in Louisville and in Jefferson County and allied civic groups, just published, consists of 72 pages of detailed information concerning nearly 225 public and private, local, state and federal units operating locally in the social service field. Indexed according to types, the directory provides a reference of available services for use by professional workers, civic and educational organizations to expedite social services.

MAINE

State Medical Meeting.—The annual session of the Maine Medical Association will be held at the Poland Spring House, Poland Spring, June 18-20 under the presidency of Dr. Ralph A. Goodwin, Auburn. Guest speakers include: Drs. Charles O. McCormick, clinical professor of obstetrics, Indiana University School of Medicine, Indianapolis; William E. Browne, clinical professor of surgery, Tufts College Medical School, Boston; Joseph C. Doane, professor of clinical medicine, Temple University School of Medicine, Philadelphia; Kenneth S. Landauer, New York, director of Medical Care, National Foundation for Infantile Paralysis; Maynard C. Wheeler, ophthalmologist, New York, and Mr. Leonard Read, president, American Economic Association Foundation, Irvington-on-the-Hudson, New York. The Medico-Legal Society will be in charge of the program on Tuesday afternoon. The annual banquet will be held Tuesday evening. Mr. Charles F. Phillips, president of Bates College, Lewiston, will be the guest speaker. A feature of this program will be presentation of Fifty-Year Medals. Mrs. Charles W. Steele, president of the Woman's Auxiliary to the Maine Medical Association, will be in charge of the program for the auxiliary.

NEBRASKA

State Medical Election.—Officers elected at the recent annual meeting of the Nebraska State Medical Association include: Drs. Charles H. Sheets, Cozad, president; Donald B. Steenburg, Aurora, president-elect; Maurice D. Frazer of Lincoln, vice president; James D. Bradley, Omaha, speaker of the house of delegates, and Earl F. Leininger, McCook, chairman of the council.

The Nebraska Medical Foundation.—This foundation, organized in 1948 through the efforts of the Nebraska State Medical Association, carried on a campaign among members of the state medical profession in May to increase its funds. The purpose of the foundation is to promote education and research in medicine and public health and through scholarships and loans to aid worthy students in attaining medical careers.

NEW YORK

Symposium on Training Handicapped Children.—A symposium in education of handicapped children will be conducted by the New York State College for Teachers at Buffalo July 30 to August 11. Daily lectures will be given on education of the mentally retarded and persons with speech and hearing defects. The symposium will be held in the afternoon so that students may enrol in one of the following morning workshop courses and receive credit: mentally retarded children, orthopedically handicapped children and speech correction.

Chronic Disease Research Institute.—The University of Buffalo on May 25 established the Chronic Research Institute. The former U. S. Marine Hospital, Buffalo, converted into a large center for research and study in alcoholism, physical rehabilitation and chronic diseases, has been turned over to the university. The University of Buffalo Medical School will operate the institute, with the aid of funds provided by the state health department. The buildings, however, remain the property of the U. S. Public Health Service. The establishment of the institute was made possible through two agreements. The first is a tripartite arrangement among the U. S. Public Health Service, the state health department and the university, under which the federal agency makes the hospital available to the state health department and the latter guarantees the university sufficient funds for maintenance of the buildings. The second agreement, between the state health department and the university, calls for operation of the institute by the university with the state providing funds up to $200,000 for the current year beginning April 1. The other phases of the institute's work, physical rehabilitation and chronic disease research, will be set up after the Marine Hospital's outpatient department moves out in the fall. The university will install laboratories and equipment and will care for 25 to 50 bed patients as part of its research study; the chronic disease research will include studies in cardiac, renal and metabolic disease and arthritis. The main building of the Marine Hospital has a 75 bed capacity, plus an outpatient department. It was built in 1907. The 3⅓ acres of land also accommodate the Nurses' Home; a manager's residence, a building with two duplex apartments, another with eight apartments and a heated six car garage (including ambulance).

New York City

Study Bathing Beaches.—The Department of Health May 24 announced that it is taking water samples at 80 points at 20 New York City bathing beaches and along the city's waterfront and making analyses of the samples as part of its continuing study of the beaches. The department of health has been making analyses of bathing beach and shorefront waters since 1937, but the program of sanitary surveys, sampling and analysis was intensified in 1948. In certain waters bathing establishments have long been prohibited. The classification given each beach last year will continue this year unless reason is found for change.

Personals.—Dr. Robert F. Pitts, professor of physiology and head of the department at Syracuse University College of Medicine since 1946, will return to the Cornell University Medical College on July 1 to become head of the department of physiology and biophysics and professor of physiology. Dr. Pitts obtained his Ph.D. degree at Johns Hopkins University in 1932 and his M.D. degree from New York University College of Medicine in 1938. He was on the faculty of Cornell from 1942 to 1946.——Dr. Elliott S. Hurwitt has been appointed chief of the surgical division of Montefiore Hospital on a full time basis and will begin his duties July 1.

OHIO

Form Trudeau Society.—The first regular meeting of the Ohio Section of the American Trudeau Society was held at the Neil House in Columbus June 1 in conjunction with the annual meeting of the Ohio Tuberculosis and Health Association. The group was formed May 19, 1949, and approval from the American Trudeau Society was given in September 1949. It will serve as the medical section of the Ohio Tuberculosis and Health Association.

Painton Fellowship in Rheumatic Fever.—The School of Medicine, Western Reserve University, Cleveland, has announced the establishment of the Eddie Painton Fellowship in rheumatic fever in the department of preventive medicine and University Hospitals. The minimum prerequisites for fellowships are one year of clinical work and one year of laboratory work or two years of clinical training. The fellowship carries a stipend of $3,600 per year. Appointments will be made annually but are subject to renewal. Applicants should write to Dr. John H. Dingle, Department of Preventive Medicine, School of Medicine, Western Reserve University, Cleveland 6.

TENNESSEE

State Medical Election.—At the annual meeting of the Tennessee State Medical Association in Memphis, April 10-12, Dr. Ralph H. Monger, Knoxville, became president and Dr. Ernest G. Kelly, Memphis, president-elect. The secretary-editor is Dr. Rudolph H. Kampmeier of Vanderbilt University, Nashville. He will be editor in chief of the scientific section of the association journal and chairman of the scientific program committee. Mr. V. O. Foster of Nashville was elected executive secretary.

Institute of Nuclear Studies.—The cancer research program conducted by the Medical Division of the Oak Ridge Institute of Nuclear Studies in cooperation with Southern medical schools will be in full operation by July 1. A small research staff has been assembled, and a 30 bed clinical unit, together with laboratories, treatment rooms and radiation storage facilities have been constructed and equipped. The program is designed to study the treatment of neoplasms through the use of radiation from radioactive isotopes. It is being financed by the Atomic Energy Commission through reimbursement under the institute's contract with the AEC. Patients to be treated will be selected and referred only by staff members of participating medical schools in Alabama, Arkansas, Georgia, Kansas, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia. The physicians at these schools who will undertake to refer suitable patients will be guided by the principle that no patient will be considered for admission if the neoplastic condition is amenable to effective surgical or roentgen therapy. In view of the limited facilities, only two or three types of neoplasms will be under study at any one time. A board of medical consultants exercises general supervision of the institute program. It is comprised of Dean Wilburt C. Davison, Duke University School of Medicine, Durham, N. C., chairman; Dr. George T. Harrell, professor of internal medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C.; Dean Vernon W. Lippard, University of Virginia Department of Medicine, Charlottesville; Dr. Douglas H. Sprunt, professor of pathology, University of Tennessee College of Medicine, Memphis; Dean Roy R. Kracke of the Medical College of Alabama, Birmingham, and Dr. Robert B. Taft, professor of radiology, Medical College of the State of South Carolina, Charleston.

WEST VIRGINIA

Heart Clinic Adds Treatment.—The services available at the Heart Clinic of the West Virginia Heart Association, held weekly at the Kanawha-Charleston Health Department, have been expanded to include treatment as well as diagnosis. The clinic is being operated primarily for the benefit of indigent patients.

Joint Meeting.—The Barbour-Randolph-Tucker Medical Society and the West Virginia Academy of General Practice will meet jointly June 15 at the Tygarts Valley Country Club, near Elkins. Dr. Hu C. Myers of Philippi will preside at the scientific session, scheduled to begin at 2 p. m. The following program will be presented:

Mr. Rex Roth, Wheeling, Preventing Medicolegal Pitfalls.
Warfield M. Firor, Baltimore, Early Diagnosis of the Acute Abdomen.
McLemore Birdsong, Charlottesville, Va., Diarrhea in Infants.
Milton S. Sacks, Baltimore, Recent Advances in Hematology.

Each address will be followed by a question and answer period.

At the banquet at 6:30 p. m. Mr. Thomas H. Hendricks, secretary of the American Medical Association, Council on Medical Service, Chicago, will be the speaker. Medical sound pictures will be shown immediately following the speaking program. A general invitation has been extended to West Virginia doctors to attend this joint meeting, which will be the first of its kind in the state.

WISCONSIN

Hospital Clinic Day.—A Clinic Day program will be held at Veterans Administration Hospital at Wood June 15 under the auspices of the hospital and the dean's committee of Marquette University Medical School. The program is to be conducted by the residents and will end with a dinner dance at the Elks Club in Milwaukee beginning at 7 p. m. All physicians are invited to attend the medical sessions.

GENERAL

Physical Therapy Meeting.—The American Physical Therapy Association will hold its annual meeting June 26-30 at the Hotel Statler, Cleveland. The program will be devoted to the physiology of the heart and circulation and its clinical application in physical medicine. Among the speakers are Dr. Harry D. Bouman, Madison, Wis., and Harry M. Hines, Ph.D., Iowa City.

***Circulation* Dedicates Issue to Dr. Herrick.**—The April issue of *Circulation*, the Journal of the American Heart Association, is dedicated to Dr. James B. Herrick, Chicago. Dr. Herrick is internationally known for his descriptions of myocardial infarction, which gave impetus to the whole field of clinical cardiology. Formerly professor of medicine at Rush Medical College, he has been one of the outstanding teachers of the twentieth century.

American Proctology Society.—The society will hold its annual meeting at the Biltmore Hotel, San Francisco, July 2-5, under the presidency of Dr. Louis E. Moon, Omaha. Guest speakers are:

George T. Harding, Los Angeles, The Irritable Colon.
Ralph E. Homann Jr., Los Angeles, Fluid and Electrolyte Balance in Intestinal Surgery.

The banquet will be held Wednesday at 7 p. m. Motion pictures will be shown and scientific and commercial exhibits displayed.

Plastic Surgery Award.—The Foundation of the American Society of Plastic and Reconstructive Surgery offers as its 1950 award $500 (first prize of $300, second prize of $200) and a Certificate of Merit, for essays on some original unpublished subject in plastic surgery. Competition shall be limited to residents in plastic surgery at recognized hospitals and to plastic surgeons who have been in such specific practice for not more than five years. The first prize essay will appear on the program of the forthcoming annual meeting of the American Society of Plastic and Reconstructive Surgery, to be held in Mexico City, N. Mex., November 27-29. Essays must be in before August 15. For particulars write the secretary, Dr. Clarence R. Straatsma, 66 East 79th Street, New York.

Conference of Presidents.—The Conference of Presidents and Other Officers of State Medical Societies will hold its meeting June 25 at 1:30 p. m. in the Gold Room of the Palace Hotel, San Francisco, under the presidency of Dr. Clarence E. Northcutt of Ponca City, Okla. The program is as follows:

Julian P. Price, Florence, S. C., Medicine's Greatest Gift.
Mr. A. Grant Clarke, New York, The Exhibitor's View of the Medical Convention.
Mr. Harry Becker, Detroit, Labor Looks at the Problem of Prepaid Medical Care.
Mr. H. E. Slusher, Jefferson City, Mo., Better Health for Rural People—How to Get It.
Mr. Baird H. Markham, New York, American Democracy on Trial.

A reception and cocktail party will close the meeting.

Society Elections.—At the May meeting of the Society for Pediatric Research the following officers were elected for the coming year: Drs. Harry H. Gordon, Denver, president; John M. Adams, Minneapolis, vice president, and Robert Ward, New York, secretary-treasurer.——The American Surgical Association at its annual meeting in April elected the following officers: Drs. Samuel C. Harvey, New Haven, Conn., president; Warfield M. Firor, Baltimore, and John M. Foster Jr., Denver, first and second vice presidents, respectively; Dr. Nathan A. Womack, Iowa City, secretary, and Dr. B. Noland Carter, Cincinnati, treasurer.

Communicable Disease Summary.—According to the U. S. Public Health Service, the incidence of whooping cough continued to increase over the previous week from 2,867 to 3,018 cases reported for the week ending May 20. On a cumulative basis for 20 weeks of this year, reported cases of meningococcic meningitis numbered 1,850, as compared with 1,668 for the corresponding period in 1949. Reported cases of poliomyelitis numbered 94 for the week ending May 20, as compared

with 102 the previous week and 101 for the corresponding period last year. Included in the total for poliomyelitis for the week ending May 20, Texas reported 38 cases and California, 16.

Rheumatism Association Meeting.—The meeting of the American Rheumatism Association will be held June 23-24 at the Fairmont Hotel, San Francisco, under the presidency of Dr. T. Duckett Jones, New York. Of the 24 papers to be presented 10 will be devoted to pituitary adrenocorticotropic hormone (ACTH) and cortisone. In addition, there will be a panel discussion Saturday on "Cortisone and ACTH in Rheumatic Diseases," the participants being Drs. Philip S. Hench, Rochester, Minn., chairman; Otto Steinbrocker, New York; W. Paul Holbrook, Tucson, Ariz.; Walter Bauer, Boston, and Currier McEwen, New York.

Scholarships for Cerebral Palsy Training. — Eight scholarships totaling $3,400 for specialized training in cerebral palsy were announced in May by the Executive Committee of the National Society for Crippled Children and Adults. Financed by a grant from Alpha Chi Omega, national women's fraternity, the scholarships are awarded by the society to physicians, therapists and educators who will assist member societies in developing and operating centers for the use of all public and private agencies interested in helping cerebral palsied persons. Since the inauguration of the program, 44 scholarships have been awarded, that number including nine physicians, eight occupational therapists, 22 physical therapists, four speech pathologists and one educator.

Poliomyelitis Recruitment Service.—The Poliomyelitis Recruitment Service of the American Physical Therapy Association acts as the national information bureau in meeting emergency needs for physical therapy service during epidemics. Miss Lucy Blair has been appointed director of the service. She will promote the participation of qualified physical therapists in meeting emergencies created by poliomyelitis epidemics and in developing after-care services. Miss Blair is a graduate of the Children's Hospital School of Nursing in Boston. Formerly she was associated with the visiting nurse associations of Boston and Milwaukee, served as consultant with the Wisconsin Crippled Children's Division, with the U. S. Navy during World War II and most recently as National Organization for Public Health nursing consultant with the Joint Orthopedic Nursing Advisory Service.

Chest Physicians Meeting.—The American College of Chest Physicians will hold its annual meeting at the St. Francis Hotel, San Francisco, June 22-25, under the presidency of Dr. Joseph C. Placak, Cleveland. The Council on International Affairs will present the following program Thursday at 8 p. m.:

Manuel Albertal, Buenos Aires, Argentina, Streptomycin in the Treatment of Tuberculosis.
Miguel Canizares, Manila, P. I., Observations on Paragonimiasis at the Quezon Institute.
E. F. Kux, Innsbruck, Austria, Endoscopic Approach to the Autonomic Nervous System and Its Therapeutic Possibilities.
G. W. H. Schepers, Johannesburg, South Africa, Pneumonoconiosis in South Africa.

Among the 26 papers to be presented is one on Saturday by Dr. Manoel de Abreu, Rio de Janeiro, on "Bronchial Lavage." Round-table luncheons will be held June 23-25. The banquet will be held Saturday at 7 p. m.

Annual Meeting on Electroencephalography.—The American Electroencephalographic Society will meet at the Hotel Claridge, Atlantic City, N. J., June 10-11 under the presidency of Dr. Hallowell Davis, St. Louis. Speakers presenting papers by invitation include:

Kentaro Shimizu and Sigvald Refsum, Chicago, Intra-Arterial Injections of Convulsant and Sedative Drugs.
John C. Lilly, Philadelphia, Moving Relief Maps of the Electrical Activity of Small Areas of the Pial Surface of the Cerebral Cortex.
Mr. Peter Kellaway, Houston, Texas, Sedation-Induced Sleep and Electroencephalographic Diagnosis in Infants.

A symposium on Clinical and Electrical Aspects of Temporal Lobe Disorder will be presented Sunday morning by Dr. Frederick A. Gibbs, Chicago, chairman, and Elizabeth C. Crosby, Sc.D., Ann Arbor, Mich.; Drs. Gerhardt Von Bonin, Chicago; James W. Papez, Ithaca, N. Y.; Warren S. McCulloch, Chicago; Heinrich Kleuver, Chicago; Wilder Penfield, Montreal, Quebec, Canada, and John R. Green, Phoenix, Ariz.

Fellowship in Dermal Pathology.—The American Academy of Dermatology and Syphilology established at its annual meeting on Dec. 7, 1949, the Earl D. Osborne Fellowship in Dermal Pathology. The purpose is to provide annually a year's study and training in dermal pathology to a postgraduate student who has completed satisfactorily at least two years of training in dermatology or one of its allied branches, in accordance with the requirements of the American Board of Dermatology and Syphilology. A stipend of $1,000 will be given to the candidate selected. The period of training will be spent at the Armed Forces Institute of Pathology, Washington, D. C., the appointment being subject to approval by the director of the institute. As the American Board of Dermatology and Syphilology has approved the institute for one year of training, the time spent will be accredited by the board. Dermatologists in training who are interested may obtain blanks for the Earl D. Osborne Fellowship from Dr. Hamilton Montgomery, Mayo Clinic, Rochester, Minn., chairman of the Committee on Pathology of the American Academy of Dermatology and Syphilology. The first appointment will become effective approximately October 1.

Report on Chronic Illness.—The National Association on Chronic Illness at its annual meeting May 8 recommended communitywide planning and action for integrated chronic disease programs. Several cities and states, including Illinois, New York, California, Maryland, Massachusetts, New Jersey and Indiana, have begun their programs largely through public health departments. Both the Connecticut and Ohio state medical associations have established committees on chronic illness. The Commission on Chronic Illness urged an expansion of these activities into all other cities and states. It also recommended the establishment of rehabilitation wards for chronic disease, especially in large general hospitals or as centers in major communities. An independent national agency, the Commission on Chronic Illness is an organization of 30 persons prominent in medicine, industry, education, government and business. It is also supported financially by the American Medical Association, National Tuberculosis Association, American Cancer Society, American Heart Association, the National Society for Crippled Children and Adults and the New York Foundation. Its technical staff with national headquarters at 535 N. Dearborn Street in Chicago will study the need for and stimulate or perform further administrative research in the field of chronic illness and plans a national campaign to acquaint the public with the positive aspects of chronic illness.

International Serodiagnostic Conference.—The World Health Organization is sponsoring an international serodiagnostic conference to be held after October 1951 at a site to be announced later. Dr. Peter Krag, previously director of the serologic department of the State Serum Institute in Copenhagen, Denmark, has been appointed to direct the conference. Dr. Brock Chisholm, director-general of the World Health Organization, 350 Fifth Ave., New York 1, invites authors of methods for the serodiagnosis of syphilis to register preliminary applications for admittance to the conference. These must be received by WHO not later than July 15, 1950. The procedure and requirements are as follows: (*a*) Name, position, laboratory address of applicant, including personal and professional data, and lists of scientific publications are to be sent to WHO accompanied with a statement indicating in detail the advantages offered by the special test and the laboratories presently employing the particular technic (as far as possible). (*b*) Only an author-serologist or a serologist designated by him, will be allowed to perform the author's procedure during the conference; each author-serologist may enter several reactions, but only one may be accepted. (*c*) A suitable number of participants in the conference will be selected by WHO on the basis of the advice given by the Committee of WHO on Serology and Laboratory Aspects, scientific, technical and geographic, other relevant factors being taken into account.

Marriages

JACOB THOMPSON BRADSHER JR., Milton, N. C., to Miss Shirley Viola Nunes at New Bedford, Mass., May 13.

CRAIG WAYNE LARIMER, Colorado Springs, Colo., to Miss Hazel George of Iowa Park, Texas, April 15.

CONRAD A. LOEHNER, Los Angeles, to Miss Arla Johnson, at Santa Barbara, Calif., April 22.

MICHAEL SMITONICK, Bayside, N. Y., to Miss Margaret M. Miney of Staten Island April 10.

LEON POLK ANDREWS, Wilmington, N. C., to Miss Doris Imogene Dow of Boston April 8.

JOSEPH A. JACHIMCZYK, Stamford, Conn., to Miss Loretta Slomski at Erie, Pa., June 17.

ROBERT COLBY STORRS, Hanover, N. H., to Miss Jean Alistair Heggie at Lebanon April 15.

JAMES DOUGLAS STUART to Miss Jeanne Natalie Crane, both of Chicago, May 20.

SAMUEL D. SALEM to Miss Sammye Lane, both of Dallas, Texas, May 6.

Deaths

Harry Searls Gradle ✦ died at his home in Sherman Oaks, Calif., May 25, aged 66. Dr. Gradle was born in Chicago Dec. 31, 1883. He graduated from the University of Michigan, Ann Arbor, in 1906 and from Rush Medical College, Chicago, in 1908, then served in eye clinics in Vienna, Prague, Berlin, Paris and London. He practiced in Chicago for many years, was assistant professor of ophthalmology at the University of Illinois College of Medicine from 1921 to 1927, professor in 1944-1945 and extramural professor of ophthalmology at Northwestern Medical School from 1928 to 1944. During World War I Dr. Gradle served as a first lieutenant in the medical corps of the U. S. Army in France and in 1924 was appointed a colonel in the medical reserve and division surgeon of the 86th infantry division. In 1939-1940 he was chairman of the Section on Ophthalmology of the American Medical Association. A specialist certified by the American Board of Ophthalmology, Dr. Gradle was president of the Chicago Ophthalmological Society in 1929, American Academy of Ophthalmology and Oto-Laryngology in 1938 and the Pan American Congress of Ophthalmology, 1940-1946. In 1937 he was the official delegate to the International Ophthalmological Congress in Cairo, Egypt. He was a regent of the American College of Surgeons, a member of the American Ophthalmological Society, the Ophthalmological Society of the United Kingdom, Chicago Medical Society, Illinois State Medical Society, American Association for the Advancement of Science and the Association of Military Surgeons of the United States, and for several years was chairman of the subcommittee on ophthalmology of the National Research Council. He was an honorary member of the Brazilian Congress of Ophthalmology and foreign corresponding fellow of the Venezuelan Academy of Medicine. In cooperation with Drs. Conrad Berens of New York and Moacyr E. Alvaro of São Paulo, Brazil, Dr. Gradle organized the first Pan American Congress of Ophthalmology, held in Cleveland in 1940. In 1948 he was awarded the first Pan American medal of the United States National Society for the Prevention of Blindness. For many years he was vice president of the Illinois Society for the Prevention of Blindness and was chairman of the committee on ophthalmology of the Illinois Public Aid Commission, Blind Assistance Program. He was consultant on trachoma among the Indians for the Department of the Interior. Dr. Gradle was attending ophthalmologist to the Michael Reese Hospital, Cook County Hospital from 1922 to 1928 and the Illinois Eye and Ear Infirmary, where he was chief of staff from 1933 to 1945, all in Chicago. From 1934 to 1945 he was director of the Trachoma Clinics of Southern Illinois. In 1946 he received the Dana Medal for outstanding service in prevention of blindness. He was on the editorial staff of *Ophthalmologia Ibero-Americana* and associate editor of the *American Journal of Ophthalmology*.

John Clarence Webster, Shediac, N. B., Canada; born in Shediac Oct. 21, 1863; University of Edinburgh Faculty of Medicine, Scotland, 1888; professor emeritus of obstetrics and gynecology at the University of Illinois College of Medicine in Chicago, where from 1899 to 1920 he was professor of obstetrics and gynecology at Rush Medical College and obstetrician and gynecologist at the Presbyterian Hospital; fellow of the Royal College of Physicians of Edinburgh, the Royal Society of Canada, the Royal Society of Edinburgh and the American College of Surgeons; Officier de l'Instruction Publique, France; commander of the Order of St. Maurice and St. Lazarus, Italy; chairman, Historic Sites and Monuments Board of Canada; honorary president of the New Brunswick Museum; first assistant in the department of midwifery and gynecology, University of Edinburgh, from 1890 to 1896; lecturer in gynecology at the McGill University Faculty of Medicine and on the staff of Royal Victoria Hospital in Montreal from 1897 to 1899; donor of the Webster Trophy, awarded annually to the amateur pilot who contributes most to Canadian aviation during the year; received the honorary degrees of doctor of science and doctor of laws from the University of Edinburgh; editor of "Atlas and Epitome of Operative Gynecology"; co-author of the Webster-Baldy operation for retroversion of the uterus; author of "Text-book of Obstetrics" (1903) and "Text-book of Diseases of Women" (1907); did much for the preservation of Canadian historic sites in the maritime provinces, Fort Beausejour Museum and the New Brunswick Museum, the restoration of forts at Louisburg, Nova Scotia, being largely the result of his personal work and influence; made permanent contributions, many at his own expense, to the history and art of Canada, his collection of Wolfe documents, maps and portraits being the most complete in the world.

Rudolph Daniel Milton Jacob ✦ Surgeon, Lieutenant Commander, U. S. Navy, Forest Park, Ill.; born in Mendota, Ill., Oct. 11, 1914; Northwestern University Medical School, Chicago, 1941; member of the Missouri State Medical Association; in August 1942 was commissioned lieutenant (jg) in the medical reserve corps of the U. S. Navy; went on active duty one month later; first assigned to the Naval Hospital at Great Lakes, Ill.; early in 1943 transferred to the regular navy; from 1943 to 1945 was assigned to Advanced Base Units in Espiritu Santo, New Hebrides, and in the Russell Islands; later served at the naval hospitals at Great Lakes, Long Beach and Treasure Island and on board the *USS Amsterdam* and *USS Chicago;* in July 1947 was transferred to the Naval Ordnance Plant; died April 25, aged 35, of injuries received in an automobile accident.

Grant Palmer Pennoyer ✦ New York; born in East Orange, N. J., Nov. 20, 1894; Harvard Medical School, Boston, 1919; formerly on the faculty of Columbia University College of Physicians and Surgeons and New York Polyclinic Medical School and Hospital; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; member of the American Association of Industrial Physicians and Surgeons; affiliated with the Roosevelt, William Booth Memorial and Goldwater Memorial hospitals; past president of the Harvard Medical Society and the Roosevelt Hospital Alumni Association; died in West Boothbay, Me., April 11, aged 55, of carcinoma of the stomach with metastases.

John Otto Dieterle, Milwaukee; born in Portsmouth, Ohio, April 19, 1892; University of Michigan Medical School, Ann Arbor, 1916; specialist certified by the American Board of Orthopaedic Surgery; assistant clinical professor of orthopedic surgery, Marquette University School of Medicine; member of the Clinical Orthopedic Society, American Academy of Orthopaedic Surgeons and the American Medical Association; fellow the American College of Surgeons; affiliated with Milwaukee, St. Luke's, Johnston Emergency and County hospitals; consulting orthopedic surgeon, Chicago, Milwaukee, St. Paul and Pacific Railways; died in Lac du Flambeau March 12, aged 57, of coronary thrombosis.

Ezekiel McCord Bailey, Elkland, Mo.; Marion-Sims College of Medicine, St. Louis, 1899; affiliated with the Springfield Baptist Hospital, in Springfield, Mo., where he died March 27, aged 76, of heart disease.

Lila Eliza Beers, Chicago; the Hahnemann Medical College and Hospital, Chicago, 1897; died March 24, aged 82, of carcinoma of the eyelid.

Arthur B. Blue, Hannibal, Mo.; Central Medical College of St. Joseph, Mo., 1904; member of the American Medical Association; affiliated with Levering and St. Elizabeth's hospitals; died March 25, aged 70, of heart disease.

Thomas R. Butchart, Tampa, Fla.; Hahnemann Medical College and Hospital, Chicago, 1895; died March 30, aged 85, of coronary disease.

Gilman Leeds Chase ✦ Clinton, Mass.; Harvard Medical School, Boston, 1906; fellow of the American College of Surgeons; affiliated with the Clinton Hospital; president of the Clinton Savings Bank; died March 16, aged 69, of heart disease.

Joseph Dysart Findley, Altoona, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; member of the American Medical Association; fellow of the American College of Surgeons; for many years chief of the surgical service, Altoona Hospital; consulting surgeon, Pennsylvania State Tuberculosis Sanatorium No. 2 in Cresson; died March 29, aged 72, of cerebral arteriosclerosis.

William Charles Foster ✦ Fort Worth, Texas; Baylor University College of Medicine, Dallas, 1924; served as director of the Handley First National Bank; died March 13, aged 49, of coronary occlusion, rheumatic endocarditis and rheumatic fever.

Richard Charles Halsey, Lake Geneva, Wis.; Rush Medical College, Chicago, 1912; member of the American Medical Association; died in Rochester, Minn., recently, aged 63, of chronic glomerulonephritis.

Edwin Harry Heller, East Hampton, N. Y.; Cornell University Medical College, New York, 1929; member of the American Medical Association; served overseas during World War II; affiliated with Southampton (N. Y.) Hospital, where he died April 14, aged 44, of injuries received in an automobile accident.

✦ Indicates Fellow of the American Medical Association.

John L. Hooper, Denton, Texas; Memphis (Tenn.) Hospital Medical College, 1893; served as a member of the school board and as city and county health officer; affiliated with Denton Hospital; died April 5, aged 86, of pneumonia and cerebral hemorrhage.

Andrew Jackson Hosmer ✠ Midvale, Utah; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; affiliated with St. Mark's Hospital in Salt Lake City; died March 28, aged 71, of coronary occlusion.

Frederick William Huber ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1896; died March 24, aged 79.

Marion McHenry Hull, Atlanta, Ga.; Georgetown University School of Medicine, Washington, D. C., 1895; member of the American Medical Association; affiliated with the Crawford W. Long Memorial Hospital; died March 28, aged 78, of heart disease.

John Bill Ivy, Tuckerman, Ark.; University of Arkansas School of Medicine, Little Rock, 1914; member of the American Medical Association; secretary treasurer of the Jackson County Medical Society; died March 30, aged 73.

Reuben Kayser, Brooklyn; Cornell University Medical College, New York, 1922; member of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; affiliated with Samaritan, Israel Zion, Brooklyn Eye and Ear hospitals in Brooklyn and Manhattan Eye, Ear and Throat Hospital in New York; died in the Good Samaritan Hospital, West Palm Beach, Fla., April 13, aged 52.

John Donovan Kessler, Coolville, Ohio; University of Pennsylvania School of Medicine, Philadelphia, 1912; died April 2, aged 61.

Kenneth E. Kilbourn, Orlando, Fla. (licensed in Michigan in 1902); died April 1, aged 72, of heart disease with decompensation.

Louis Alfred Kopecky, Chicago; Bennett Medical College, Chicago, 1914; member of the American Medical Association; died May 1, aged 65.

John Joseph Looze ✠ Wisconsin Rapids, Wis.; Rush Medical College, Chicago, 1889; an Associate Fellow of the American Medical Association; for many years medical examiner for the Metropolitan Insurance Company; served as surgeon for the Chicago, Milwaukee, St. Paul and Pacific railroads; died February 17, aged 88, of cardiovascular renal disease.

Frances Lillian Raberge McLoughlin, Seattle; Cooper Medical College, San Francisco, 1896; died March 14, aged 76, of cerebral hemorrhage.

William Thomas McMahon, Pittsfield, Mass.; Maryland Medical College, Baltimore, 1913; served during World War I; died March 21, aged 64, of arteriosclerosis.

David A. Morrison ✠ Kokomo, Ind.; Indiana University School of Medicine, Indianapolis, 1924; member of the American Association of Industrial Physicians and Surgeons; served during World War II; died April 19, aged 54, as the result of an automobile accident.

Bernard Joseph O'Neill, San Diego, Calif.; Rush Medical College, Chicago, 1908; member of the American Medical Association; past president and secretary of the San Diego County Medical Society; fellow of the American College of Surgeons; served during World War I; died April 11, aged 73, of uremia.

James West Pegram ✠ Milwaukee; University of Virginia Department of Medicine, Charlottesville, 1902; died March 21, aged 69, of coronary occlusion.

Sylvester Brackenridge Peters ✠ Knoxville, Tenn.; Medical Department of Grant University, Chattanooga, 1900; affiliated with Fort Sanders and Knoxville General hospitals; died March 24, aged 76, of cerebral hemorrhage.

Charles Edwin Pierce ✠ Watertown, N. Y.; Bellevue Hospital Medical College, New York, 1897; for many years secretary of the Jefferson County Medical Society; for two terms coroner of Jefferson County; affiliated with Mercy Hospital and the House of the Good Samaritan, where he died March 31, aged 78, of pulmonary edema.

John Rice Porter ✠ Rockford, Ill.; Northwestern University Medical School, Chicago, 1911; past president of the Winnebago County Medical Society; served overseas during World War I; member of the American College of Allergists; physician in the Municipal Venereal Disease Clinic; died March 27, aged 62, of coronary occlusion.

Eugene Breckenridge Potter ✠ Seattle; University of Michigan Medical School, Ann Arbor, 1925; specialist certified by the American Board of Surgery; formerly associate professor of surgery at his alma mater; served during World War I; affiliated with Virginia Mason Hospital; died April 10, aged 51.

William Jennings Presley, Grand Haven, Mich.; Grand Rapids Medical College, 1901; member of the American Medical Association; surgeon to the Pere Marquette Railroad; on the staff of Grand Haven Municipal Hospital, where he died April 2, aged 81, of coronary thrombosis.

William Ravine ✠ Cincinnati; Medical College of Ohio, Cincinnati, 1909; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; psychiatrist for the Domestic Relations and Juvenile Courts of Hamilton County; affiliated with Jewish Hospital, where he died April 11, aged 66, of acute coronary thrombosis.

Charles L. Scofield, Benson, Minn.; State University of Iowa College of Medicine, Iowa City, 1886; member of the American Medical Association; died in Swift County Hospital April 23, aged 85, of cerebral thrombosis.

Adam Ernest Shaw ✠ Lowell, Mass.; Medical School of Maine, Portland, 1906; founder, medical director and superintendent of Shaw Hospital, where he died April 11, aged 67, of cerebral hemorrhage.

William Amos Skeele ✠ Alton, Ill.; Northwestern University Medical School, Chicago, 1932; served overseas during World War II; died in the De Paul Hospital, St. Louis, April 23, aged 43, of heart disease.

Samuel Starr, Providence, R. I.; Harvard Medical School, Boston, 1910; died recently, aged 65, of coronary disease.

Frederick Augustus Sutliff, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1902; member of the American Medical Association; affiliated with Germantown Hospital; died April 20, aged 77, of arteriosclerotic cardiovascular disease.

Paul Akers Turner ✠ Louisville, Ky.; Columbia University College of Physicians and Surgeons, New York, 1908; member of the American College of Chest Physicians, American Trudeau Society and the American Public Health Association; formerly director of health and chairman, Washington State Board of Health; medical director and superintendent of State Tuberculosis Sanatorium (Hazelwood); died April 13, aged 67, of heart disease.

James A. Vaughan, Longmont, Colo.; Kansas City (Mo.) Medical College, 1892; died March 13, aged 81, of heart disease.

George Alvin Walker ✠ Oakland, Calif.; born in Pueblo, Colo., June 4, 1903; University of Kansas School of Medicine, Kansas City, 1935; specialist certified by the American Board of Pathology; member of the State Medical Society of Wisconsin, American Association of Pathologists and Bacteriologists, and the American Society of Clinical Pathologists; founding fellow of the College of American Pathologists; pathologist and director of laboratory, St. Luke's Hospital in San Francisco; died April 18, aged 46, of coronary thrombosis.

Jesse Elliott Ward, Robersonville, N. C.; University of Maryland School of Medicine, Baltimore, 1904; member of the American Medical Association; served as a member of the Martin County Selective Service Board during World War II and received the Congressional Medal of Honor; died in the Duke Hospital, Durham, March 23, aged 67, of acute heart failure.

Nels Westby ✠ Madison, Minn.; Cornell University Medical College, New York, 1913; fellow of the American College of Surgeons; affiliated with Ebenezer Lutheran Hospital; died April 21, aged 64, of coronary heart disease.

Arthur B. Williams, Memphis, Tenn.; Memphis (Tenn.) Hospital Medical College, 1897; member of the American Medical Association; on the staffs of St. Joseph and John Gaston hospitals; died April 11, aged 80.

Marion Orr Willson, Billings, Mont.; State University of Iowa College of Medicine, Iowa City, 1907; died March 29, aged 75.

Robert Rudolph Wilson, Shreveport, La.; Memphis (Tenn.) Hospital Medical College, 1912; member of the American Medical Association; died April 2, aged 63.

John P. Young, Empire, Ohio; Baltimore Medical College, 1894; formerly county health commissioner; died April 8, aged 90.

Foreign Letters

ITALY

(From a Regular Correspondent)

FLORENCE, April 15, 1950.

Conference on Silicosis

A conference on silicosis, initiated by the Filippo Pacini Medical Academy, was held in Pistoia.

Professor Adamo, from the Institute of Legal Medicine of the University of Siena, reported on the anatomic aspects of pulmonary silicosis. The changes in the parenchyma of the lung following the inhalation of free silica dust vary in form and degree, according to the amount and quality of the inhaled dust, duration of and fatigue associated with the work, constitution of the patient, preexisting lesions and those developing in the course of the morbid process and the state of the mucous membranes of the upper respiratory tract. Such lesions involve linear thickening of the supporting tissues, formation of nodules and finally massive sclerosis. Small silica particles which reach the alveoli are absorbed within the interstitial lymphatic channels and are conveyed to the regional lymph nodes through the lymph capillaries, where they are taken up by the reticuloendothelial elements.

Some of the small particles, because of their particularly irritating properties or because of the high concentration reached in the lymphatic current, become directly phagocytized by the histiocytes of the interstitial connective tissue before they can reach the usual reservoirs of the deposits. At the same time there is an increase in the fine trabeculae of support of the histiocytes and linear thickening of the tissue of support of the pulmonary parenchyma, which becomes evident in the nodal points of the interlobular connective tissue and in the adventitia of the small arteries of the lobule and of the acinus.

Successively, because of the continuous supply of silica granules, the phenomena of phagocytosis, of proliferation and of hypertrophy of the reticuloendothelial cells are repeated and the typical silicotic nodule is formed, with excessive proliferation at the periphery, which characterizes it as a granuloma endowed with a certain invasive activity.

Transition from the nodular form to the massive or pseudotumorous form follows. The lung becomes enlarged because of the emphysema and the hypertension of the lesser circulation, respiration becomes more difficult, and the overaction of the right side of the heart is accentuated with a tendency to hypertrophy, dilatation and decompensation.

Death of the silicotic patient results much more frequently from a superimposed tuberculous infection than from circulatory complications.

Professor Toniolo, director, Roentgenologic Institute, University of Siena, spoke on radiologic aspects of pulmonary silicosis. The roentgenologic picture becomes relatively characteristic only after development of the silicotic nodule. The complications which may be produced by the silicotic changes in the massive phase of the process finally predominate, and the roentgenologic picture is no longer specific but in general indicates the nature of the lesion. Because of this lack of specificity and because a radio-optical phenomenon, defined by Talmieri as "pseudointerference of the shadow," which complicates the interpretation is produced, diagnostic judgment may not be improved by careful analysis of the basic anatomic changes. It is therefore necessary to investigate the dynamic and functional changes in addition to the basic anatomic changes of silicosis. Roentgenoscopy, roentgen kymography and the orthodiagraphic method are particularly valuable for demonstrating the degree of emphysema and of the atelectatic processes. The orthostatic examination is useful for verifying the changes of the lesser circulation; it usually facilitates evaluation of the difference of the thoracic transparency in the roentgenologic picture in horizontal and vertical positions.

Professor Lorenzoni spoke on pulmonary silicosis from the clinical point of view, emphasizing the subjective and objective symptomatology of the disease, the signs of progressive pulmonary emphysema and the manifestations of cardiorespiratory involvement. Progressive lengthening of expiration is symptomatic; it becomes noisier and may assume a characteristic bronchial sound. The diagnosis of massive silicosis can be made with certainty in persons who have been exposed to silica (inhalation) and present signs of dyspnea from strains, in whom examination reveals zones of tympanic hyperphonesis alternating with zones of minor resonance and in whom auscultation reveals harsh breathing and bronchial sound in inspiration as well as in expiration, being both lengthened and noisy.

The speaker claimed to be the first to call attention to this characteristic, which may be the only typical one of silicosis. He stated that other symptoms of silicosis resemble those of pulmonary emphysema of various causes. He observed that fever in general indicates complications and particularly association with tuberculosis. Prognosis depends to a considerable extent on the heart action and on the association with tuberculosis.

Professor Lorenzoni also discussed medicolegal aspects of pulmonary silicosis, commenting on the law on obligatory insurance against silicosis and asbestosis.

He stated that compensable silicosis according to Italian law is dependent on a positive roentgenologic picture and signs of cardiorespiratory involvement. Grant of compensation for silicotuberculosis requires demonstration of the presence of active tuberculosis associated with definite roentgenologic signs of silicotic deposits. Professor Lorenzoni recommended, because of the diagnostic difficulties which still exist, that necropsy and microscopic examinations be performed whenever death of a workman results.

PARIS

(From a Regular Correspondent)

April 15, 1950.

Repartition by Age of Doctors

The total number of doctors in France increased from 28,000 in 1939 to 33,000 in 1949. Information from public health departments is summarized in the accompanying table. The

Data on Age Groups

Age, Yrs.	Total No.	Rate per 100 Doctors
25-29	2,173	6.6
30-34	4,661	14.1
35-39	5,803	16.4
40-44	4,698	14.3
45-49	3,204	9.7
50-54	3,209	9.8
55-59	2,684	8.1
60-64	1,954	5.9
65-69	2,006	6.1
70-74	1,669	5.0
75-79	1,060	3.2
80 and over	295	0.8

average age of the newly certificated doctors is 27 years and 3 months, and of the practitioners 47 years and 7 months. The average yearly number of new doctors is 2,000, but the number of students is likely to decrease. In 1945-1946 there were 5,800 students in the preparatory year; there were 4,500 in 1949, and 4,000 are anticipated for 1952-1953. Under existing conditions, 38,000 to 39,000 doctors are foreseen for 1953, but

the institution of a retiring pension at the age of 65, the development of social security services and industrial medicine and specialization may avoid a plethora.

Spasmophilia and Labor

H. P. Klotz has completed a study of spasmophilia, subsidized by the social security national fund. He observed 86 patients with spasmophilia who were said to have psychasthenia, slight depression, hysteria, neurotonia, cardiac erethism or spasmodic colitis. If these patients had been treated sooner their periodic interruption of work would have been reduced. Spasmophilia is more frequent in women (76 women as against 10 men); often pregnancies occurring at frequent intervals precipitate the disease in subjects with constitutional spasmophilia. Hyperfolliculinism also seems to be an important factor. The diagnosis must be precise, and Klotz mentions the great value of Chvostek's sign. If this sign is questionable, hyperpnea of three minutes will evoke evidence; if Chvostek's sign remains doubtful after the dyspnea, it is of no value. Moreover, the hyperpnea test often allows observation of the reproduction of paroxysmal crisis with *main d'accoucheur* (obstetrician's hand) called Trousseau's phenomenon, and the contracture of the foot, Escherich's carpopedal spasm, or it provokes tremor in the extremities. One of the most important disorders due to spasmophilia is hypocalcemia. When it is not evident, it may be provoked, according to Klotz, by the injection of 20 mg. of estradiol. However, it may not be possible to provoke this in spasmophilic patients with normal or subnormal calcium content.

The electrical signs of spasmophilia consist in the galvanic hyperexcitability of the nerves, which corresponds to the clinical neuromuscular hyperexcitability (Erb's sign). The rheobasis is lowered, chronaxia is increased; Turpin and Lefebvre have recently shown that there is a lowering of the galvanotonic index. Klotz, in collaboration with P. Borenstein, showed frequent alterations in the electroencephalogram, a slow diffuse dysrhythmia in all derivations of the type of these of epilepsy.

Early treatment is essential, to prevent spasmophilic psychosis, with calcium and vitamin D_2, 2.5 mg. per day in average cases, or dihydrotachysterol, 1 to 1.5 mg. per day. Calcium alone is not sufficient; it can serve only for emergency treatment in an acute crisis. The author, on the strength of the study of several hundreds of cases, states that these high doses are well tolerated for months and years and have never provoked hypercalcemia or hypervitaminosis accidents, but they may be dangerous in nonspasmophilic patients. Improvement is rapid; in certain cases all symptoms disappear. When cure is incomplete, it is necessary to treat hypoandrogenia in men and hyperfolliculinitis in women, as well as diencephalic and psychogenic factors. Disturbances, even a familial conflict, may impair the result of treatment. Klotz, in his study published in *Le Médecin Français* (April 10, 1950), points out the necessity for precise diagnosis. Early treatment will avoid unnecessary expense for the patient and for the National Security Fund.

Fight Against Leprosy

Leprosy is an international problem of great importance, and the World Health Organization is studying the financial, administrative and technical aspects of an international campaign; it is considering the creation of a world research center and the organization of the exchange of experts. In January 1950 an exhibit on the treatment of leprosy was opened at Dakar, French West Africa, to show the results of the campaign begun in 1945. An active search disclosed 65,000 lepers, but it is estimated that 1.5 per cent of the 5 million inhabitants are diseased and that, in certain regions particularly stricken, the endemic rate is more than 4.6 per cent.

The central office of the antileprous organization is at Bobo-Dioulasso: large mobile services of prophylaxis and hygiene were created in the country and in the jungle. The stationary antileprous posts remain under the direction of the public welfare organization. Antileprous services were incorporated in the antimalarial services. The personnel includes 25 European and 45 African doctors and 86 male nurses. Numerous centers were created in order to avoid long and frequent journeys. In 1949, 17,000 patients were treated.

The center for scientific research, documentation and statistics is located at the Marchoux Institute, established in 1934 at Dakar. It includes laboratories, hospitals and villages for patients, who live there with their families and are admitted to the hospital only when their condition becomes worse. Isolation is not justifiable from the medical point of view and psychologically and socially would be catastrophic. Many improved patients return home and refer other leprous persons for treatment. This proves that the fatalism formerly prevalent in those patients tends to diminish. Unfortunately the Marchoux Institute provides only 350 places, and these must be reserved for the cases that are scientifically most interesting.

AUSTRALIA

(From a Regular Correspondent)

BRISBANE, May 12, 1950.

Health Insurance Plans

As a result of the change of government last December, the previous plans for a national medical service have been discarded. The Minister for Health is now Sir Earle Page, a physician. He is said to be anxious for a minimum of governmental control of medical service.

The present plan is a system of voluntary insurance. An approved health insurance organization will have its funds so subsidized by the government that 80 per cent of medical and hospital costs will be met. The plan is designed to give patients a sense of personal and social responsibility through payment of sickness insurance premium and 20 per cent of the fees. The government proposes to leave as much as possible of the control and administration of the scheme to doctors, pharmacists, hospital managements, insurance societies and voluntary organizations.

The British Medical Association had agreed to the formation of an expert committee to submit a small formulary of life-savings drugs which would be free of cost to the patient. One effect of these proposals would be to increase enormously the membership and power of the friendly societies in Australia. These societies have been in existence for more than 50 years, and for their subscriptions their members receive numerous benefits, including social and ritual, sickness payments, medical and funeral benefits. By their combined bargaining power these societies enter into a contract with doctors to provide their members with medical attention, either at home or at the doctor's office, in return for a fixed annual payment. This is known as a capitation system of payment, in contrast to the fee-for-service system which the doctors prefer. The British Medical Association is reported to be afraid that a sizable increase in the membership of these friendly societies in the proposed plan would permit them to dictate to the doctors.

This proposed plan also brings forth objections from pharmacy leaders, because the friendly societies operate a chain of dispensaries that fill the prescriptions given by the doctors who provide the medical service to the members. Pharmacy in Australia is based on the operation of small independent drug stores, and the possibility of channeling of the large bulk of prescriptions to the dispensaries of the friendly societies has caused

dismay. This is added to by fears that the contractual relationship will be with the friendly societies and not the government. Pharmacists are also worried that the "life-saving drugs" proposal will be mostly those (such as antibiotics) which require no compounding.

In the meantime, the British Medical Association is developing other voluntary sickness insurance organizations, notably the medical benefit fund and the bankers health society. These organizations provide for 70 per cent payment of a full range of medical, surgical, diagnostic, anesthetic and obstetric services for a contribution of the equivalent of 17 cents per week for an unmarried person or 34 cents for a married person with or without dependents.

The second phase of the present government's plan provides for the capital expenditure on new hospitals, increase in capacity of existing hospitals and extended equipment.

Correspondence

PITUITARY ADRENOCORTICOTROPIC HORMONE

To the Editor:—An aspect of pituitary adrenocorticotropic hormone (ACTH) therapy which seems to have escaped attention is the relationship of the pituitary adrenal axis to fat metabolism and to fatty infiltration of the liver. There is a considerable amount of evidence at hand to indicate that the pituitary adrenal axis is involved in fat metabolism and the production of fatty infiltration of the liver. There are few references in the literature concerning the relationship of the hormone to lipid metabolism and fatty infiltration of the liver.

Baker, Ingle, Li and Evans (*Am. J. Anat.* **82**: 75, 1948), using a histochemical technic, have demonstrated in rats given high carbohydrate diets that after 10 to 21 days of daily injections of ACTH the liver shows considerable lipid infiltration. This is manifested by a vacuolation of the hepatic cells and a reduction in cytoplasmic ribonucleoprotein. Li, Simpson and Evans (*Endocrinology* **44**: 71, 1949) have shown in rats subjected to hypophysectomy that animals receiving the drug show an increased deposition of fat in place of protein and that the drug induces a rise in the fat content in the carcass with a diminution of the water content. These investigators have also shown that in fasting normal rats or those subjected to hypophysectomy treated with large doses of pituitary adrenocorticotropic hormone there is an increase in liver fat with less significant changes in the water and protein content (*Arch. Biochem.* **23**: 51, 1949). The fact that ACTH, directly or indirectly, affects fat metabolism has also been demonstrated by Bennett and his co-workers (*Am. J. Physiol.* **152**: 210, 1948). These investigators found that the drug exhibits ketogenic activity in fasting rats and that the effect of the hormone disappears in animals subjected to adrenalectomy.

Fry (*Endocrinology* **21**: 283, 1937) as well as MacKay and Barnes (*Am. J. Physiol.* **118**: 525, 1937) had previously reported that the fatty livers induced by the administration of pituitary extracts to intact rats could not be induced in rats that had undergone adrenalectomy. Adrenalectomy has also been found to inhibit the deposition of fat after phosphorus poisoning, partial hepatectomy, feeding of high fat diets or injections of epinephrine.

Within recent months there have been two other contributions to the subject. Jefferies (*J. Clin. Endocrin.* **9**: 937, 1949) has stated that ACTH, if it is a factor in increasing liver fat, is not the only factor in pituitary extract which mobilizes fat to the liver. This is probably true, since Li, Simpson and Evans have shown that the growth hormone also mobilizes fat to the liver. More recently, Payne, (*Endocrinology* **45**: 305, 1949) has stated that the pituitary contains a fat-mobilizing factor separate from its well recognized tropins and that, while this factor requires the presence of the adrenal gland to mobilize fat to the liver, its action is not mediated by the adrenal. However, this concept runs counter to present day opinion, which seems to be that the pituitary gland does not elaborate a separate fat-mobilizing factor. Moreover, the recent work of Li, Simpson and Evans would seem to indicate that the fat-mobilizing function of the pituitary is discharged by ACTH and the growth hormone.

The present status of the relationship of the adrenal gland to lipid metabolism has been summarized by Hartman and Brownell (The Adrenal Gland, Philadelphia, Lea & Febiger, 1949, p. 256): "Adrenal insufficiency decreases the ability to absorb lipids, especially those with the long chain fatty acids. The adrenal cortex is necessary for fat transport from the depots to the liver. Adrenalectomized animals use their depot fat more slowly than normal animals do. There is a marked delay in the rate of development of the specific dynamic action of fat after adrenalectomy, even in animals kept in good condition by minimal treatment."

Thus far there are no published reports available on the effect of cortisone or 17-hydroxycorticosterone (compound F) on lipid metabolism and lipid infiltration of the liver. It has been reported that 11-dehydrocorticosterone (compound A) can cause an increase in carcass fat in the mouse (Kendall, E. C.: Conference on Metabolic Aspects of Convalescence, Transactions of the Tenth Conference, 1945, New York, Josiah Macy Jr. Foundation, p. 81; Kochakian, D. C.; *ibid.*, Transactions of the Sixth Conference, 1944, p. 13).

In their recent article, "Observations on the Physiologic Effects of Cortisone and ACTH in Man" (*Arch. Int. Med.* **85**: 199, 1950) Sprague and his colleagues make no mention of the effect of either ACTH or cortisone on fat metabolism or fatty infiltration of the liver. However, they do state, "Even prior to the time that cortisone and ACTH were administered in relatively large amounts to human subjects, many of their physiologic effects might have been predicted with approximate accuracy by examining the features of Cushing's syndrome." They also state, "Many of the features of Cushing's syndrome may be regarded as being due to overproduction of cortisone-like steroid hormones by hyperfunctioning adrenal cortices; hence patients with this syndrome present a unique opportunity for the study of the consequences of chronic excess of the use of such hormones." It is therefore of interest that fatty infiltration of the liver is a common finding at autopsy in Cushing's syndrome (Sossman, M. C.: *Am. J. Roentgenol.* **62**: 1 [July] 1949). This clinicopathologic observation would tend to support the experimental evidence of Baker, Ingle, Li, Evans and Simpson.

Inasmuch as the injection of ACTH in animals seems to be followed by a rapid mobilization of fat to the liver, it is plausible that the same reaction may take place in man. It seems also reasonable to assume that, if this prompt infiltration of the liver does occur, it may be sufficient to provoke a mild hepatic dysfunction and that this dysfunction may be at least in part responsible for some of the biochemical changes produced by the drug. Of special significance in this connection may be the tendency to a diminished sugar tolerance, the tendency to glycosuria, the finding in some instances of increased plasma cholesterol and the presence in other cases of ketosis. It seems worthy of note that these biochemical changes are also present in the two conditions which benefit rheumatoid arthritis, namely, pregnancy and jaundice (Archer, B. H.: *Arch. Int. Med.* **84**: 361, 1949). Whether or not this bears any relationship to the antiarthritic effect of ACTH awaits further investigation.

BENJAMIN H. ARCHER, M.D., New York.

Bureau of Investigation

THE "MAGIC SPIKE" GETS SPIKED

Recently in federal court in Chicago, Judge Walter J. LaBuy issued a scathing denunciation of quackery. At the same time he sentenced Chicagoans George C. Erickson and R. T. Nelson Jr., who were promoters of the "Vrilium Tube," to jail terms of one year and fined each $1,000. Their firm was fined $1,000, and costs were assessed against all defendants. These were maximum penalties on a one count criminal information filed under the Federal Food, Drug and Cosmetic Act of 1938 for misbranding the device. The jury trial lasted two weeks. Chicago newspapers covered the case thoroughly, dubbing the device the "magic spike."

The two men were operating the Vrilium Products Company, Chicago. They were selling this worthless gadget for $300. It is a small brass tube about 2 inches long and about ¼ inch in diameter. To one end of it there was connected a brass safety pin, so that the "patient" could pin the tube to his clothing at different places, according to the location of the real or fancied affliction. Therapeutic benefit was derived from "emanations," and such emanations were supposed to dissolve pathologic conditions in due course.

Within the tube was found a tiny glass capillary tube containing about 17 mg. of barium chloride. The barium chloride, however, did not activate a Geiger counter, and it was demonstrated at the trial that there was no measurable radiation coming from these tubes.

The Vrilium tube was formerly known as the "Radium Pencil." In the early 1920's the Aaban Radium Company was putting out a gadget of the same dimensions and appearance. The active partners were a doctor of medicine and the father of one of the present defendants. In 1928, however, the Federal Trade Commission issued a cease and desist order against this firm, requiring it to stop advertising that any of its products were radium or had radioactivity.

It was after this, apparently, that a new name was found for the gadget. Barred from the description "radioactive" in the advertising, these promoters settled for the term "emanations." They apparently led customers to believe that these emanations were not measurable by scientific instruments yet devised. An attempt was made to bring in testimony to this effect.

The defendants, in presenting their case, offered testimony of "satisfied" users. Some of these were found to be agents of the defendant firm. One witness, an osteopath, claimed to have "cured" several persons of various afflictions with the tube. Cross examination revealed that he was a salesman for the firm and that his profit per tube was $190. He had sold more than 150 of them.

The files of the Bureau of Investigation reveal that this osteopath, Raymond C. Kistler of Wyandotte, Mich., was in possession of several of the tubes at the time there was a seizure action instituted under the Federal Food and Drug law in 1945. He and the firm as claimants had an opportunity at that time to defend the charges that the tube was misbranded, but the seizure was allowed to go by default. Even after the seizure, this man was disclosed to be renting a tube to a victim of arthritis who had heard about him in her home in the East. Her husband had quit his job there and moved to Michigan so that his suffering wife could have the benefit of "treatments" with the tube. The rate was $10 a week. It was revealed that the husband was making only $50 a week in his new job.

In commenting on the activities of these persons, the Chicago judge unmasked medical quackery. His was rather an apt summation of the evil quality of this promotion and may well be applied generally to quackery in the healing arts. The court's remarks are quoted below:

"The evidence in this case is conclusive that there is no foundation whatever for your representations that this tube possesses therapeutic or healing properties. Its component parts are absolutely worthless and the sale of the device constitutes a gross fraud on the public.

"The parade of witnesses who testified in your behalf can be generally divided into two classes: the naive folk who bought this pendant at exorbitant prices and the dishonest peddlers who sold them at huge profits.

"You have imposed on the poor sick, who in their anxiety for relief would try anything at any price. You have fooled the trusting, the credulous and the gullible. The quackery you have employed is more despicable because those who were deceived into believing in your fake remedy failed to pursue the treatment proved by medical science to be effective in preventing and curing disease. This credulous belief in the efficacy of your useless product is the greatest danger inherent in quackery. It discourages and prevents those who use it from seeking proper medical treatment and the results of such neglect are often fatal.

"Some of the quacks who peddled this 'ornament' at unconscionable profit are guilty of practicing medicine without a license; all of them are guilty of obtaining money under false pretenses. Their reprehensible participation in your scheme should be stopped. The law-enforcing agencies should be diligent in protecting the public from the conduct of these charlatans."

By such actions those who dupe the public with worthless devices can be brought to justice. However, since decision in the courts in such instances must be founded on evidence, the medical profession and health authorities must be ever alert to quackery. It can appear in any community.

Medical Motion Pictures

FILM REVIEW

Hemicolectomy for Carcinoma of the Right Side of the Colon. One Stage Procedure. 16 mm., color, silent, 655 feet (2 reels), showing time 27 minutes. Prepared in 1949 and procurable on loan or purchase from Philip Thorek, M.D., 25 East Washington Street, Chicago 2.

This motion picture shows a one stage surgical procedure for extirpation for an adenocarcinoma of the ascending colon. The case history is presented as well as preoperative roentgenograms following the administration of barium. The nonobstructing lesion of the ascending colon is well shown in the roentgenograms. A colored illustration of the anatomy of the large bowel, showing the site of the lesion and the area to be resected, is presented and adds greatly to the film.

The operation is performed under spinal anesthesia through a right rectus incision, and the abdomen is opened. The pathology and the area to be resected are well demonstrated. The ascending colon is mobilized in the proper avascular cleavage plane. The terminal 6 inches (15 cm.) of the ileum, cecum, ascending colon, hepatic flexure and the proximal third of the transverse colon are removed along with a wide segment of their attached mesentery in order to remove as much of the lymphatic drainage as possible. The right ureter is beautifully demonstrated as is the viability of the colon beyond the anticipated area of transection. Continuity of the bowel is established by an aseptic end to end ileotransverse colostomy; a Kerr-Parker suture of fine surgical gut is used for the inner layer and interrupted sutures of cotton for the outer layer of the anastomosis.

After the actual anastomosis, colored illustrations, which add a great deal to the teaching value of the film, are presented to show the details of the technic. The final pathologic report is presented and a postoperative roentgenogram taken one year after operation is shown and compared with the preoperative film. The patient is shown one year postoperatively. The surgical technic employed is excellent.

The film is well captioned. It can be recommended for demonstration of the technic of hemicolectomy to general surgeons and for showing to residents, interns, medical students and nurses. The photography is excellent.

POSTGRADUATE CONTINUATION COURSES FOR PHYSICIANS

Compiled by the Council on Medical Education and Hospitals for the Period July 1, 1950 to Jan. 15, 1951

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	ALLERGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Personal Course in Allergy and Related Conditions	Sept. 27, 10 weeks, part time	$125.00
	One month Personal Course in Allergy	First Monday of every month, full time	200.00
	Six month Personal Course in Allergy	By appointment, full time	500.00
University of Illinois College of Medicine, 1853 W. Polk St., Chicago 12	Postgraduate Course in Allergy	October 1950, 12 months, full time	300.00 [1]
Wayne University College of Medicine, 1512 St. Antoine St., Detroit	Allergy Clinic	Sept. 11-Dec. 2, 1950, part time	25.00
American College of Allergists, 423 LaSalle Medical Bldg., Minneapolis 2 At: Psychoanalytic Clinic, Columbia University, New York	Psychotherapy for Allergists	Nov. 6-10, full time	100.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital At: Montefiore Hospital	Medicine PM 36 Allergy Medicine PM 68 Allergy	Nov. 27-Dec. 11, part time Sept. 7-Nov. 30, part time	40.00 150.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Beth El Hospital	Allergy	October 1950, part time, 10 weeks	30.00
At: Kings County Hospital	Allergy Applied Immunologic Procedures in Children	October 1950, part time, 8 weeks October 1950, 8 weeks, part time	20.00 20.00
American College of Physicians, 4200 Pine St., Philadelphia 4 At: Roosevelt Hospital, N. Y.	Clinical Allergy	Oct. 23-Nov. 3, 1950, full time	120.00 [3]
New York University Postgraduate Medical School, 477 First Ave., New York 16	5415-A Allergy 543-A Allergy	Oct. 16-Nov. 3, 3 weeks, full time Jan. 5-Feb. 23, 1951, 8 sessions, part time	225.00 35.00
University of Pittsburgh School of Medicine, O'Hara St., Pittsburgh At: Montefiore Hospital, Pittsburgh, and U. S. Veterans Hospital, Aspinwall, Pa.	Allergy—Clinical and Laboratory	Oct. 16-28, full time	100.00
	ANATOMY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	Surgical Anatomy	Oct. 4, 1950, 37 weeks, part time	100.00
University of California Medical School, University Extension, Los Angeles 24	Surgical Anatomy	Sept. 11-Dec. 11, part time	100.00
Yale University School of Medicine, 333 Cedar St., New Haven, Conn.	Anatomy 104 Demonstrations in Anatomy	September-June, part time	175.00
	Anatomy 201 Special Dissections	Arranged, part time	Arranged [19]
University of Illinois, College of Medicine, 1853 W. Polk St., Chicago 12	Dissection	Quarterly, 12 weeks	75.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit	Surgical Anatomy	Dec. 2, 1950-June 9, 1951, part time	70.00
University of Maryland School of Medicine, 29 S. Greene St., Baltimore 1	Surgical Anatomy	Jan. 30, 1951, 15 weeks, part time	150.00
	General Anatomy	Sept., 1950, through April, arranged	Arranged [4]
Harvard Medical School, 25 Shattuck St., Boston	Surgical Anatomy	Sept. 5-Oct. 27, 8 weeks, part time	200.00 [5]
Essex County Medical Society, 3840 Clinton St., Newark, N. J. At: Newark City Hospital	Surgical Anatomy	Oct., 1950, 20 sessions, part time	200.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Anatomy of the Abdomen	Arranged, 100 hours	150.00
	Applied Anatomy for the General Surgeon	Arranged, 250 hours	375.00
	Anatomy of the Thorax	Arranged, 100 hours	150.00
	Applied Anatomy for the Anesthetist	Arranged, 125 hours	275.00
	Applied Anatomy for the Otolaryngologist	Arranged, 150 hours	275.00
	Applied Anatomy of the Urogenital System	Arranged, 120 hours	300.00
	Anatomy for the Orthopedic Surgeon	Arranged, 100 hours	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Head and Neck Dissection	Arranged, 4 weeks, part time	150.00
	Surgical Anatomy of Nose and Accessory Sinuses	Arranged, 4 weeks, part time	150.00

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ANATOMY—Continued		
New York University Postgraduate Medical School, 477 First Ave., New York 16	411-A Anatomy of the Head and Neck	Sept. 18-June 15, 1951, 8, 12 or 16 weeks	[15]
	412-A Anatomy of the Thorax and Its Viscera	Sept. 18-June 15, 1951, 12 weeks, part time	$150.00
	413-A Anatomy of the Abdomen	Sept. 18-June 15, 1951, 12, 16 or 8 weeks	[15]
	414-A Anatomy of the Female Pelvis	Sept. 18-June 15, 1951, 12 weeks, part time	150.00
	415-A Anatomy of the Genito-Urinary System	Sept. 18-June 15, 1951, 12 weeks, part time	150.00
	416-A Anatomy of the Musculoskeletal System	Sept. 18-June 15, 12 or 16 weeks, part time	150.00 12 wks. 200.00 16 wks.
	417-A General Anatomy	Sept. 18-June 15, 8 weeks, part time	250.00
	418-A Surgical Anatomy of the Hand	Sept. 18-June 15, 6 weeks, part time	85.00
Western Reserve University School of Medicine, 2109 Adelbert Rd., Cleveland 6	Anatomy 11-G	Oct. 1, 1950 to April 30, 1 to 6 months, part time	70.00 per month
University of South Dakota School of Medicine, Vermillion, S. D.	Special Anatomy	Sept. 1950, 4½ months, full time	75.00
	ARTHRITIS		
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Jewish Hospital	Arthritis	Oct. 1950, 8 weeks, part time	30.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	Arthritis and Allied Rheumatic Disorders 5414-A	Oct. 9-27, 1950, 3 weeks, full time	125.00
	542-A Arthritis and Allied Rheumatic Disorders	Jan. 2-Feb. 20, 1951, 8 sessions, part time	50.00
	ANESTHESIOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	Anesthesiology	Four months, full time	300.00
University of Colorado Medical Center, 4200 East 9th Ave., Denver 7	Fundamentals of Anesthesiology	Oct. 5-7, 1950, 2½ days	20.00 [6]
Yale University School of Medicine, 333 Cedar St., New Haven, Conn. At: Hartford Hospital	Anesthesia 200 Pharmacological Background to Anesthesia	Sept. 26-Jan. 30, part time	15.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Practical 2 week Course in Spinal and Intravenous Anesthesia	Every 2 weeks, 2 weeks, full time	150.00
	Practical 1 month course in Nitrous Oxide and Ether Anesthesia	First of every month, 1 month, full time	125.00
	Practical 1 month course in Ether, Nitrous Oxide, Ethylene and Cyclopropane Anesthesia	First of every month, 1 month, full time	200.00
	Practical 2 week course in Endotracheal Anesthesia	Every 2 weeks, 2 weeks, full time	150.00
American Society of Anesthesiologists, Inc., 188 W. Randolph St., Chicago 1	Courses for Anesthesiologists and General Practitioners given in hospitals and medical schools throughout the country	Arranged [5]	
University of Kansas School of Medicine, Kansas City, Kan. At: University of Kansas Medical Center	Anesthesiology	Sept. 18-20, full time	20.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11	Anesthesiology I	Arranged 4 weeks, part time	60.00 [6]
	Anesthesiology II	Arranged, 6 months, full time	300.00 [6]
Essex County Medical Society, 3840 Clinton St., Newark, N. J. At: Newark City Hospital	Regional Anesthesiology	Jan. 1951, 10 sessions, part time	100.00
New York State Society of Anesthesiologists, 745 Fifth Ave., New York At: Various Hospitals in New York State	PG Training Program in Anesthesiology	Arranged	None
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Anesthesia PM 30 Diagnostic and Therapeutic Nerve Blocking	Oct. 17-Nov. 17, part time	50.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Clinical Anesthesiology	Arranged, 3 months, full time	200.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Applied Anesthesia	Oct. and Jan., 3 months, full time	300.00
	Anesthetic Technic	Oct. and Jan., 6 weeks, full time	100.00
	Regional and Spinal Anesthesia	Oct. and Jan., 6 weeks, full time	100.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Jewish Hospital	Anesthesiology	Oct. 1950, 6 weeks, part time	30.00
At: Kings County Hospital	Diagnostic and Therapeutic Nerve Blocking	Oct. 1950, 4 weeks, part time	40.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	511-A Anesthesiology	Sept. through May, 2 weeks, full time [16]	150.00
	512-A Regional Anesthesiology	Sept. 5-16-Jan. 2-13, 1951, 2 weeks, full time	200.00
	513-A Anesthesiology	Sept. 5, 1950, 12 months, full time	600.00
	514-A Anesthesiology	Sept. 25-Dec. 15, 12 weeks, full time	300.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Anesthesiology	Oct. 2, 1950, 8 months, full time	800.00
	Segmental Neuralgias—Relief by Regional Anesthesia	Arranged, 3 weeks, full time	200.00
	BACTERIOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Review of Microbiology (Bacteriology) a Basic Course	Oct. 5, 5 weeks, part time	75.00
University of Illinois College of Medicine, 1853 W. Polk St., Chicago	Refresher Courses in Bacteriology, Immunology and Preventive Medicine	Fall and winter qtr., 24 weeks, part time	50.00 [7]
University of Michigan Medical School, Ann Arbor, Mich.	Bacteriology	Dec. 4-15 and Jan. 3-7	Not given
University of South Dakota School of Medicine, Vermillion, S. D.	Clinical Applications of Microbiology	Sept. 1950, 4½ months, full time	75.00

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Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
BASIC SCIENCE			
University of Illinois College of Medicine, 1853 W. Polk St., Chicago	Basic Science Course	Oct. 2, 1950, 9 months, full time	$200.00 [7]
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans 12	Basic Science as applied to Orthopedics	Sept. 1, 1950, and Feb. 1, 1951, 5 months, full time	300.00
	Basic Science in Otolaryngology	July 1, 1950, 10 months, full time	500.00
	Basic Science in Ophthalmology	July 1, 1950, 10 months, full time	500.00
University of Maryland School of Medicine, 29 S. Greene St., Baltimore 1	Basic Sciences as Applied to Pediatrics	Jan. 1951, 20 weeks, full time	375.00
	Basic Sciences as Applied to Obstetrics and Gynecology	Jan. 1951, 20 weeks, full time	375.00
University of Minnesota, Center for Continuation Study, Minneapolis 14	Clinical Chemistry	Dec. 7-9, 3 days, full time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 1 E. 105th St., New York	Basic Science—Medicine	3 years, Oct. 2, 1950	710.00
	Basic Science—Surgery	3 years, Oct. 2, 1950	910.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	421-A Basic Science Biochemistry	Sept. 28-June 14, part time	90.00
	431-A Microbiology Basic Science	Sept. 25-June 11, 1951, 16 weeks, part time	75.00
BIOCHEMISTRY			
Essex County Medical Society, 3840 Clinton St., Newark, N. J. At: Seton Hall College	Biochemistry 12F	Oct. 1950, 12 sessions, part time	100.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Beth El Hospital	Clinical Biochemistry	Oct. 1950, 10 weeks, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Review Course in Biochemistry	Arranged, 36 hours	300.00
University of South Dakota School of Medicine, Vermillion, S. D.	Clinical Applications of Biochemistry	Sept. 1950, 4½ months, full time	75.00
CARDIOVASCULAR DISEASES			
University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33 At: Los Angeles County General Hospital	Cardiology and Vascular Disease 832	Sept. 11, 1950, 12 months, full time	1,000.00
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	Cardiology	Jan. 9-Mar. 13, 1951, 10 weeks, part time	50.00
California Heart Association, 45 2d St., San Francisco 5 At: San Francisco	Postgraduate Symposium on Heart Disease	Oct. 1950 4 days	15.00
At: Los Angeles		Oct. 1950, 2 days	15.00
Chicago Medical Society, 30 North Michigan Ave., Chicago At: Thorne Hall	Diseases of the Heart, Kidney and Blood Vessels	Oct. 30-Nov. 4, 1 week, full time	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Personal Course in Cardiovascular Diseases	Sept. 20, 10 weeks, part time	80.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Beth Israel Hospital	Cardiology I	Jan. 29-May 12, 1951, 3½ months, full time [4]	500.00 [6]
At: Boston City Hospital	Cardiology II	Nov. 1-Jan. 17, 1951, 12 sessions, part time	75.00 [6]
At: Massachusetts General Hospital	Cardiovascular Disease	Oct. 1, 1950, 12 months, full time	800.00 [6]
At: Peter Bent Brigham Hospital	Clinical Heart Disease	July 3-31, 1950, 1 month, full time	200.00 [6]
Washington University School of Medicine, 4580 Scott Ave., St. Louis 10	Cardiovascular Diseases	Nov. 1950, 3 days	Not given
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 31 Cardiovascular Diseases	Oct. 20-Dec. 16, part time	125.00
	Medicine PM 46 Bedside Clinics in Heart Disease	Oct. 16-Dec. 4, part time	30.00
	Medicine PM 48 Bedside Diagnosis and Treatment of Heart Disease	Oct. 10-Dec. 12, part time	45.00
At: Montefiore Hospital	Medicine PM 60 Cardiology	Sept. 28-June 7, full time	300.00
	Medicine PM 61 Intermediate Cardiology	Sept. 26-Jan. 23, part time	150.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Cardiology	Arranged, 20 weeks, part time	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Diagnosis and Treatment of Diseases of the Heart	Arranged, 3 weeks, part time	75.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	Cardiovascular Diseases 681-A	Sept. 21-Dec. 14, 12 sessions, part time	50.00
	5417-A Cardiology	Oct. 2-6, 5 days, full time	60.00
	544-A Cardiology	Jan. 8-Feb. 19, 6 sessions, part time	50.00
University of Buffalo School of Medicine, 24 High St., Buffalo	Cardiology	Oct. 1950, 1 week	Not given
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Rd., Portland	Cardiology	Oct. 9-13, 5 days, full time	50.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Cardiology	Oct. and Jan., 8 weeks, part time	80.00
Dallas Southern Clinical Society, Medical Arts Bldg., Dallas, Texas At: Melrose Hotel	Cardiology	Nov. 13-15, full time	25.00
DERMATOLOGY AND SYPHILOLOGY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	Dermatology	Jan. 2-Mar. 20, 1951, 12 weeks, part time	40.00
Medical College of Georgia, Augusta, Ga.	Exfoliative Cytology and the Diagnosis of Cancer	Sept. 18-23, full time	75.00
U. S. Public Health Service, Communicable Disease Center, Atlanta, Ga.	Laboratory Diagnosis of Mycotic Diseases—	July 24-Aug. 4, 1950, 2 weeks, full time	No fee
	Part 1, Cutaneous and Subcutaneous Fungi		
	Part 2, Systemic Fungi	Aug. 7-17, 1950, 2 weeks, full time	No fee
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Clinical Refresher Course in Dermatology	Every Monday, 2 or more weeks, full time	75.00 / 2 wks. 125.00 / 4 wks. 100.00
	Intensive 2 week course in Dermatology	Oct. 16, 1950, 2 weeks, full time	1,000
	Twelve month Clinical Course in Dermatology	By appointment, full time	1,000
University of Illinois College of Medicine, 1853 West Polk St., Chicago	Mycology (Pathogenic Fungi)	Sept. 1950, 1 week, part time	15.00

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
DERMATOLOGY AND SYPHILOLOGY—Continued			
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Dermatology and Syphilology	Oct. 1, 1950, 12 months, full time	$800.00 [6]
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11	Dermatology I	Nov. 6-10, 1950, 5 days, full time	40.00 [6]
Wayne University College of Medicine, 1512 St. Antoine St., Detroit At: Receiving Hospital	Seminar in Dermopathology	Sept. 11-Dec. 2, 1950, Dec. 4-Mar. 10, 1951 12 weeks, part time	15.00
	Superficial Mycoses	Dec. 4-Mar. 10, 1951, 12 weeks, part time	30.00
	Seminar in Dermatology	Sept. 11-Dec. 2, 1950, Dec. 4-Mar. 10, 1951 12 weeks part time	15.00
Columbia University, 630 W. 168th St., New York At: Montefiore Hospital	Dermatology PM 60 Common Skin Diseases and Treatment	Oct. 2-Dec. 4, part time	40.00
	Dermatology PM 61 Relation of Skin to Internal Medicine	Sept. 11-Jan. 8, part time	55.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Beth El Hospital	Diagnosis and Treatment of Common Skin Disorders	Oct. 1950, 8 weeks, part time	20.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Dermatology and Syphilology for the General Practitioner	Arranged, 5 days, full time	75.00
	Dermatology and Syphilology for Specialists	Arranged, 5 days, full time	75.00
	Dermatologic Histopathology	Arranged, 5 days, full time	75.00
	Training for Specialization in Dermatology and Syphilology	Oct. 1, 3 years, full time	1,000.00 [8]
New York University Postgraduate Medical School, 477 First Ave., New York 16	522-A Seminar in Dermatology and Syphilology	Jan. 15-19, 1951, 5 days, full time	55.00
	524-A Dermatology and Syphilology for Pediatricians	Sept. 11-15, 1950, 1 week, full time	75.00
	525-A Dermatology and Syphilology	First Monday in Oct., 1 to 3 years	1,200.00 [17]
	Short term and Practical Courses in Dermatology and Syphilology	Three months to 1 year, arranged	200.00 per month
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Dermatology-Syphilology	Oct. 1950, 8 or 12 months, full time	800.00
DIABETES			
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Personal Course in Medical and Surgical Diabetes	Sept. 13, 10 weeks, part time	80.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: New England Deaconess Hospital	Diabetes Mellitus in Relation to General Medicine	Oct. 9-13, 1950, 1 week, full time	75.00 [6]
Joint Committee on Postgraduate Education, 1313 Bedford St., Brooklyn 16 [2] At: Jewish Sanitarium and Hospital for Chronic Diseases	Complications of Diabetes Mellitus	Oct. 1950, 12 weeks, part time	20.00
ELECTROCARDIOGRAPHY			
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Personal Course in Heart Disease and Electrocardiography	Sept. 6, 10 weeks, part time	125.00
	Two week intensive Course in Electrocardiography and Heart Disease	July 17, full time	150.00
	Four week Course in Electrocardiography and Heart Disease	Oct. 2, full time	250.00
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans 12	Review in Electrocardiography	Nov. 27-Dec. 8, 1950, 2 weeks, full time	100.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11	Electrocardiography I	Dec. 11-15, 1950, 5 days, full time	40.00 [6]
	Electrocardiography II	Jan. 15-17, 1951, 3 days, full time	25.00 [6]
Providence Hospital, 2500 West Grand Blvd., Detroit 8	Cardiology and Electrocardiography	Oct.-Dec., 12 sessions	15.00
Essex County Medical Society, 3840 Clinton St., Newark, N. J. At: Seton Hall College	Cardiology, Electrocardiography and Fluoroscopy of the Heart	Oct. 1950, 30 sessions, part time	150.00
	Unipolor Lead Electrocardiography	Oct. 1950, 10 sessions, part time	60.00
Albany Medical College, Albany, N. Y.	Electrocardiography	Late fall, 1950, 8 sessions, part time	Not given
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 41 Intensive Course in Elementary Electrocardiography	Sept. 25-30, full time	60.00
	Medicine PM 42 Intensive Course in Advanced Electrocardiography	Oct. 2-6, full time	40.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Beth El Hospital	Basic Electrocardiography	Oct. 1950, 5 weeks, part time	20.00
At: Jewish Hospital	Electrocardiography for the General Practitioner	Oct. 1950, 6 weeks, part time	30.00
At: Jewish Sanitarium and Hospital for Chronic Diseases	Advanced Electrocardiography	Oct. 1950, 8 weeks, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Electrocardiography	Arranged, 2 weeks, part time	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Electrocardiographic Interpretation	Arranged, 2 weeks, part time	75.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	542-A Electrocardiography	Nov. 13-17, full time	60.00
At: Beth Israel Hospital	682-A Electrocardiography	Sept. 21-Dec. 14, 12 sessions, part time	35.00
University of Oklahoma School of Medicine, Oklahoma City At: University Hospital	Electrocardiography	Nov. 27-Dec. 1, 1950, 5 days, part time	50.00
University of Michigan Medical School, Ann Arbor, Mich.	Electrocardiographic Diagnosis	Aug. 28-Sept. 2	75.00

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ELECTROENCEPHALOGRAPHY		
Columbia University, 630 W. 168th St., New York At: Columbia Presbyterian Medical Center	Neurology PM 2 Clinical Electroencephalography and Electromyography	Any 3 months between Oct. 1 and Mar. 31, full time	$150.00
At: Mt. Sinai Hospital	Neurology PM 33 Clinical Electroencephalography	Oct. 5-Jan. 18, part time	60.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Electroencephalography	Arranged, 2 weeks, full time	200.00 [9]
	ENDOCRINOLOGY		
Medical College of Georgia, Augusta	Endocrinology	Sept. 4-9, 1950, 6 days	50.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave., Chicago 16	Diseases of the Endocrines, Physiology and Diagnostic Methods	Sept. 18-29, full time	Not given
Essex County Medical Society, 3840 Clinton St., Newark, N. J. At: Seton Hall College, South Orange, N. J.	Endocrinology	Nov. 1950, 6 sessions, part time	40.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 38 Diseases of Metabolism	Nov. 30-Dec. 14, full time	40.00
	Medicine PM 39 Endocrinological Diseases	Oct. 19-Nov. 9, full time	30.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Beth El Hospital	Endocrine Disorders in Children and Adolescents	Oct. 1950, 8 weeks, part time	20.00
At: Jewish Hospital	Female Sex Endocrinology	Oct. 1950, 10 weeks, part time	20.00
	Disorders of the Endocrine System	Oct. 1950, 6 weeks, part time	40.00
At: Jewish Sanitarium and Hospital for Chronic Diseases	Applied Endocrinology	Oct. 1950, 6 weeks, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Endocrinology	Arranged, 3 weeks, full time	150.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	542-A Endocrinology	Oct. 23-27, 1950, 5 days, full time	60.00
	549-A Endocrinology	Jan. 5-Feb. 23, 1951, 8 sessions, part time	30.00
	ENDOSCOPY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Practical and Didactic Course in Proctoscopy and Sigmoidoscopy	July 11, Aug. 1, Aug. 22, Sept. 19, Oct. 17 and Nov. 7, 3 weeks, part time	50.00
	Ten day Practical Course in Cystoscopy	July 10, July 24, Aug. 7, Aug. 21, Sept. 11, Oct. 9, Oct. 23, Nov. 6 and Nov. 27, full time	150.00
Columbia University, 630 W. 168th St., New York At: Columbia Presbyterian Medical Center	Medicine PM 2 Gastroscopy	Arranged, 2 months, part time	250.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Bronchoscopy	Arranged, 4 weeks, part time	150.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Gastroscopy	Arranged, 2 weeks, part time	200.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Gastroscopy (advanced)	Arranged, 3 weeks, part time	200.00
	Bronchoesophagology, Gastroscopy and Laryngeal Surgery	Sept. 1950, 2 weeks	250.00
	FORENSIC MEDICINE		
New York University Postgraduate Medical School, 477 First Ave., New York 16	531-A Forensic Medicine	Sept. 25, 1950, 1 year, full time	600.00
	532-A Forensic Medicine	Arranged, varying duration	100.00 per month
	FRACTURES		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Clinical Course in Fractures	By appointment, 1st of every month, one or more weeks	50.00 1 week 100.00 2 weeks
	Intensive 2 week course in Fractures and Traumatic Surgery	Oct. 9, 1950, 2 weeks, full time	125.00
	Special Course in Fractures	Oct. 11, 1950, 10 weeks, part time	125.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Fractures and Allied Trauma	Arranged, 3 weeks, full time	150.00
	GASTROENTEROLOGY		
University of Southern California, Medical Extension Education, 1200 N. State St., Los Angeles 33 At: Los Angeles County General Hospital	Gastroenterology 844	Sept. 11, 1950, 12 months, full time	1,000.00
University of California, University Extension, San Francisco 22 At: University of California Hospital	Gastroenterology	Aug. 28-30, 1950, 1 week, full time	Not given
Yale University School of Medicine, 333 Cedar St., New Haven, Conn.	Medicine 201 Gastroenterology	Sept. 20-Dec. 20, part time	60.00
Chicago Medical Society, 30 North Michigan Ave., Chicago 2 At: Thorne Hall	Diseases of the Gastrointestinal Tract, Liver and Pancreas	Oct. 23-30, 1950, 1 week, full time	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Personal Course in Gastroenterology	Sept. 13, 10 weeks, part time	100.00
	Two week Personal Course in Gastroscopy and Gastroenterology	July 17, Sept. 25, Oct. 23, full time	200.00
	Two week Course in Gastroenterology	Oct. 16, full time	100.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit At: Receiving Hospital	Gastroenterology	Sept. 11-Dec. 2, 1950, Dec. 4-Mar. 10, 1951, 12 weeks, part time	15.00
Essex County Medical Society, 3840 Clinton St., Newark, N. J. At: Seton Hall College	Gastroenterology	Oct. 1950, 10 sessions, part time	50.00
Columbia University, 630 W. 168th St., New York At: Montefiore Hospital	Medicine PM 70 Gastroenterology	Oct. 3-Jan. 16, part time	75.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Jewish Hospital	Gastroenterology I	Oct. 1950, 6 weeks, part time	20.00
At: Jewish Sanitarium and Hospital for Chronic Diseases	Gastroenterology II	Oct. 1950, 6 weeks, part time	20.00
At: Greenpoint Hospital	Gastroenterology III	Oct. 1950, 8 weeks, part time	30.00
At: Beth El Hospital	Gastroenterology IV	Oct. 1950, 8 weeks, part time	30.00

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
GASTROENTEROLOGY—Continued			
National Gastroenterological Association, 1819 Broadway, New York 23 At: Hotel Statler	Postgraduate Gastroenterology	Oct. 12-14, 1950, 3 days, full time	$25.00 [10]
New York Medical College, Flower and Fifth Ave. Hospitals, 29 E. 106th St., New York	Gastroenterology	Arranged, 1 month, part time	Not given
New York University Postgraduate Medical School, 477 First Ave., New York 16	5411-A Gastroenterology	Jan. 5-Feb. 23, 1951, 8 sessions, part time	50.00
	5421-A Gastroenterology	Dec. 4-15, 1950, 10 days, full time	115.00
University of Buffalo School of Medicine, 24 High St., Buffalo	Gastroenterology	Fall 1950, 3 days, full time	Not given
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Gastroenterology	Oct.-May, 32 weeks, full time	800.00
Dallas Southern Clinical Society, Medical Arts Bldg., Dallas	Gastroenterology	Sept. 11-13, full time	25.00
GERIATRICS			
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 47 Geriatrics	Oct. 5-Jan. 25, part time	65.00
HEMATOLOGY			
University of California Medical School, University Extension, Los Angeles 24	Advanced Hematology	Jan.-Feb., 8 sessions, part time	Not given
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Personal Course in Hematology	Sept 20, 10 weeks, part time	100.00
		Sept. 25, full time	100.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave., Chicago 16	One week Personal Course in Hematology	July 24-Aug. 5, 2 weeks, full time	100.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11	Hematologic Diagnosis	Dec. 4-8, 1950, 5 days, full time	40.00 [6]
	Hematology I	Dec. 4-Mar. 10, 12 weeks, part time	50.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit	Beginning Hematology	Dec. 4-June 9, 24 weeks, part time	30.00
	Blood		
Albany Medical College, Albany, N. Y.	Hematology	Early winter 1951, 8 sessions	Not given
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 35 Hematology	Oct. 17-Dec. 12, part time	60.00
At: Montefiore Hospital	Medicine PM 67 Advanced Hematology	Sept. 26-Jan. 2, part time	75.00
	Medicine PM 66 Clinical Hematology	Sept. 19-Jan. 23, part time	75.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Jewish Hospital	Clinical Hematology	Oct. 1950, 8 weeks, part time	20.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	546-A Clinical Hematology	Oct. 2-Dec. 4, Jan. 8-Feb. 19, 10 sessions, part time	40.00
American College of Physicians, 4200 Pine St., Philadelphia 4 At: Boston, Mass.	Hematology	Oct. 16-20, full time	30.00 members 60.00 non-members
University of Pennsylvania Graduate School of Medicine, Philadelphia 4 At: Bryn Mawr Hospital	Clinical and Laboratory Hematology	Oct. and Dec., 6 weeks, full time	200.00
HISTOLOGY			
New York Medical College, Flower and Fifth Ave. Hospitals, 29 E. 106th St., New York	Histology	Arranged, 5 weeks, full time	300.00
INDUSTRIAL MEDICINE			
New York University Postgraduate Medical School, 477 First Ave., New York 16	481-A Industrial Medicine	Sept. 25, 1950, 1 year, full time	600.00
	484-A Medical Aspects of Compensation	One week, full time, date to be announced	25.00
University of Pittsburgh School of Medicine, Pittsburgh 13	Graduate Course in Industrial Medicine	Eighteen months, full time, arranged	Fellowship Grants
INTERNAL MEDICINE			
University of California Medical School, University Extension, Los Angeles 24	Symposia on Therapy in Metabolic, Endocrine and Gastro-Intestinal Diseases	Sept. 20-Dec. 13, part time	Not given
University of Southern California School of Medicine, 1200 N. State St., Los Angeles At: Los Angeles County General Hospital	Clinical Review of Internal Medicine 830	Sept. 11, 1950, 9 months, full time	250.00
	Internal Medicine 831	Dec. 4, 1950, 9 months, full time	750.00
College of Medical Evangelists, 312 Boyle Ave., Los Angeles 33 At: Los Angeles County General Hospital	Differential Diagnosis and Treatment of Internal Disease	Jan. 1-Mar. 19, 1951, 12 weeks, part time	50.00
Yale University School of Medicine, 333 Cedar St., New Haven, Conn.	Medicine 212 The Physiological Aspects of Internal Medicine	Sept. 29-Dec. 15, part time	45.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Two week Intensive Course in Internal Medicine	Oct. 2, full time	75.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Boston City Hospital	Internal Medicine 1	Sept. 5, 1950, 12 months, part time	600.00 [6]
	Internal Medicine 2	Sept. 5-Nov. 30, 1950, full time	375.00 [6]
	Medical Diagnosis and Treatment	Oct. 24-May 23, 1951, 34 sessions, part time	100.00 [6]
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11	Graduate Course in Internal Medicine	Oct. 2, 1950, 9 months, full time	750.00 [6]
	Review of Recent Advances in Internal Medicine	Oct. 2-7, 1950, 1 week, full time	50.00 [6]
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Clinical Internal Medicine	Oct. 5-Dec. 14, 1950, 10 weeks, part time	Not given
Wayne University College of Medicine, 1512 St. Antoine St., Detroit At: Receiving Hospital	Medical Conference	Sept. 11-Dec. 2, Dec. 4-Mar. 10, 12 weeks, part time	15.00

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
INTERNAL MEDICINE—Continued			
Essex County Medical Society, 3840 Clinton St., Newark, N. J. At: Seton Hall Campus, South Orange, N. J.	Peripheral Vascular Disorders and Vascular Surgery	Oct. 1950, 13 sessions, part time	$60.00
At: Seton Hall College, Newark, N. J.	Internal Medicine 1-F	Oct. 1950, 20 sessions, part time	100.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 30 Symposium on Internal Medicine	Oct. 16-Dec. 16, full time	350.00
	Medicine PM 43 Peripheral Vascular Disease	Oct. 12-Jan. 18, part time	40.00
At: Montefiore Hospital	Medicine PM 65 Peripheral Vascular Disease	Sept. 21-Jan. 18, part time	75.00
Cornell University Medical College, 1300 York Ave., New York 21 At: Bellevue Hospital	Internal Medicine	First of each month, 3 or 6 months, full time	$500 6 mos. 250 3 mos.
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Beth El Hospital	Peripheral Vascular Disease I	Oct. 1950, 10 weeks, part time	30.00
At: Jewish Hospital	Peripheral Vascular Disease II	Oct. 1950, 5 weeks, part time	20.00
At: Coney Island Hospital	Peripheral Vascular Disease III	Oct. 1950, 8 weeks, part time	20.00
	Hypertension and Nephritis	Oct. 1950, 8 weeks, part time	20.00
At: Jewish Hospital	Diarrheal Diseases	Oct. 1950, 10 weeks, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Internal Medicine	One or 2 months, full time, monthly beginning September	150.00 1 month 300.00 2 months
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Treatment of Varicose Veins	Arranged, 4 weeks, part time	50.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	541-A Seminar in Internal Medicine	Jan. 2-Feb. 23, 1951, 8 weeks, full time	350.00
	083-A Internal Medicine	Oct. 25-Dec. 15, 8 weeks, part time	80.00
	5429-A Internal Medicine	Sept. 25, 1950, 1 year, full time	600.00 [18]
	5428-A Internal Medicine	Oct. 9-Jan. 6, 1951, 4, 8 or 12 weeks, part time	
	5413-A Peripheral Vascular Diseases	Jan. 4-Feb. 15, 1951, part time	40.00
	5418-A Peripheral Vascular Diseases	Nov. 27-Dec. 1, 1950, 5 days, full time	60.00
Oklahoma State Medical Assn., 210 Plaza Court, Oklahoma City At: 40 centers in the State of Oklahoma	Internal Medicine	One lecture a week in each center for 10 weeks	20.00
University of Oklahoma School of Medicine, 800 N. E. 13th St., Oklahoma City	Postgraduate Course in Internal Medicine	Oct. 9-11, 1950, 3 days	15.00
American College of Physicians, 4200 Pine St., Philadelphia 4 At: Duke University School of Medicine, Durham, N. C.	Physiological Basis for Internal Medicine	Oct. 9-14, full time	30.00 Mbrs. A. C. P. 60.00 Non-Mbrs.
University of Pennsylvania, Graduate School of Medicine, Philadelphia 4	Internal Medicine	Oct. 2, 1950, 8 months, full time	800.00
American College of Physicians, 4200 Pine St., Philadelphia 4 At: University of Chicago School of Medicine	Critical Problems in Internal Medicine	Oct. 23-27, full time	30.00 members 60.00 non-members
At: University of Pittsburgh	Internal Medicine: Selected Subjects	Sept. 25-30, 1950, 1 week, full time	30.00 [11]
University of Wisconsin Medical School, 418 N. Randall Ave., Madison 6	Observation Course in Internal Medicine	Arranged, 1 to 6 months, full time	100.00 per month
MALIGNANT DISEASES			
University of California Medical School, University Extension, Los Angeles 24	Diagnosis and Therapy of Cancer	July 17-22, full time	100.00
University of Colorado School of Medicine, 4200 E. 9th Ave., Denver,	Exfoliative Cytology for the Diagnosis of Cancer	July 24-Aug. 5, 2 weeks, full time	100.00
Indiana University Medical Center, Indianapolis	Refresher Course in Cancer	Sept. 20-21, 2 days, full time	25.00
University of Michigan, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Cancer	Jan. 1951, 4 days, full time	25.00
Center for Continuation Study, University of Minnesota, Minneapolis 14	Cancer for Physicians	Jan. 4-6, 1951, 3 days, full time	20.00
Columbia University, 630 W. 168th St., New York At: Montefiore Hospital	Medicine PM 72 Neoplastic Diseases	Sept. 26-Jan. 23, part time	150.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Brooklyn Cancer Institute	Diagnosis and Treatment of Neoplastic Diseases	Oct. 1950, 8 weeks, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	New Concepts in the Physiology and Biochemistry of Cancer	Arranged, 6 weeks, part time	150.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Rd., Portland 1, Ore.	Diagnosis and Treatment of Malignant Growths	Sept. 11-15, 1950, 5 days, full time	25.00
MEDICINE, GENERAL			
Black Belt Medical Society, Marion, Ala. At: Selma Country Club, Selma, Ala.	Black Belt Postgraduate Assembly	Twice a month	15.00
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	Diseases of the Kidneys	Nov. 14-Dec. 19, 6 weeks, part time	25.00
	General Medicine	Oct. 3-Dec. 19, 12 weeks, part time	50.00
	Treatment of Functional Illness in General Practice	Jan. 3-Feb. 21, 1951, 8 weeks, part time	40.00
Stanford University School of Medicine, San Francisco	Postgraduate Medical Course for Practicing Physicians	Sept. 11-15, 1950, 5 days, full time	75.00
St. John's Hospital, Santa Monica, Calif.	Postgraduate Assembly	Sept. 11, 1950, 3 days	10.00
Los Angeles County Medical Association, 1925 Wilshire Blvd., Los Angeles 5	Practical Medicine Lecture Series	Continuously, part time	None

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Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	MEDICINE, GENERAL—Continued		
University of California Medical Center, San Francisco 22 At: University of California Hospital	Evening Symposia in Medicine	Sept. 18-Dec. 4, 1950, 12 weeks, part time	$50.00
San Joaquin County Medical Society, 1036 N. Center St., Stockton 3, Calif.	Stockton Postgraduate Study Club	Sept.-Dec., part time	10.00
	Two day Postgraduate Institutes [24]	Santa Barbara, Oct. Fresno, Nov.	Not given Not given
University of Colorado School of Medicine, 4200 East 9th Ave., Denver 7	Applied Medical Science	Jan. 1-June 15, 1951, 5½ months, full time	220.00 [12]
Emory University School of Medicine, 36 Butler St., S. E., Atlanta 3, Ga. At: Grady Memorial Hospital	Postgraduate Course for General Practitioners	Oct. 1950, 5 days	10.00
American Congress of Physical Medicine, 30 N. Michigan Ave., Chicago At: Hotel Statler, Boston	Instruction Seminar	Aug. 28-31, 1950, 4 days	15.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Biochemical Background of Clinical Medicine	Oct. 4, 10 weeks, part time	100.00
	Physical Diagnosis	Oct. 4, 10 weeks, part time	80.00
	One week Intensive Personal Course in Liver and Biliary Tract Diseases	Sept. 18, 1 week, full time	100.00
Illinois Academy of General Practice, 12710 Maple Ave., Blue Island, Ill. At: Bloomington, Peoria, Kankakee, Joliet, Belleville and Herrin	Postgraduate Instruction for General Practitioners	Sept. 1950-July 1951, once weekly	Undetermined
Illinois State Medical Society, Postgraduate Education Committee, 30 N. Michigan Ave., Chicago 2 At: Various Districts throughout the state	Postgraduate Conference	1 day in each center, 12 conferences per year	None
Indiana University School of Medicine, Indianapolis	Refresher Course for General Practitioners	Oct. 11-12, 1950, 2 days, full time	20.00
University of Kansas School of Medicine, Kansas City 3, Kan. At: 8 centers in State of Kansas	Circuit Course in General Medicine and Surgery	First week of month Dec.-May, part time	25.00
University of Kansas Medical Center, Kansas City 3, Kan.	General Practice Postgraduate Course	Tenth of each month Nov.-May, 7 sessions, part time	25.00 [13]
University of Louisville School of Medicine, 101 W. Chestnut St., Louisville, Ky.[33] At: Louisville General Hospital	Medicine and Surgery (Pediatrics and Obstetrics)	Sept. 24-25, full time	10.00
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans	Therapeutics in General Practice	Nov. 6-10, 1950, 5 days, full time	50.00
Educational Committee Academy of General Practice of Wayne County, Detroit, Mich. At: Rachlan Auditorium, Detroit, Mich.	4th Annual Postgraduate Lecture Series	Oct. 25-26	None
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich.	Medical Application to Biophysics	Jan. 9-21, 1951, 2 weeks	Not given
Kansas City Southwest Clinical Society, 630 Shukert Bldg., Kansas City 6, Mo. At: Municipal Auditorium	Annual Fall Clinical Conference	Oct. 2-5, 1950, 4 days	15.00
University of Nebraska College of Medicine, 42d and Dewey, Omaha	Refresher Course for General Practitioners	Oct. and May, 36 hours	25.00
Omaha Mid-West Clinical Society, 1031 Medical Arts Bldg., Omaha 2 At: Hotel Paxton, Omaha	Annual Postgraduate Clinical Assembly	Oct. 23-27, 1950, 5 days, full time	Not given
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 49 Diagnosis and Treatment of Ambulatory Patients	Oct. 4-Dec. 8, part time	30.00
	Medicine PM 32 Gastrointestinal Diseases	Oct. 18-Dec. 13, part time	80.00
	Medicine PM 33 Diseases of the Liver	Oct. 16-30, part time	35.00
	Medicine PM 34 Diseases of the Kidneys	Nov. 6-20, part time	35.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	General Practitioner's Course	Arranged, 4 weeks, full time	100.00
	General Medicine	Arranged, 4 weeks, full time	100.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	5424-A Nephritis and Hypertension	Oct. 30-Nov. 3, 1950, 5 days, full time	55.00
	5412-A Nephritis and Hypertension	Jan. 3-Feb. 21, 1951, 8 sessions, part time	35.00
	5410-A Diseases of the Liver and Biliary Tract	Jan. 3-Feb. 21, 1951, 8 sessions, part time	30.00
	547-A Problems in Diagnosis	Jan. 4-Feb. 15, 1951, 7 sessions, part time	50.00
University of Buffalo School of Medicine, 24 High St., Buffalo	Thirtieth Annual Course for General Practitioners	Sept., 2 weeks	60.00
Duke University School of Medicine, Durham, N. C.	Symposium	Nov. 9-11, full time	None
Frank E. Bunts Educational Institute, 2020 East 93d St., Cleveland 6 At: Cleveland Clinic	General Medicine	Sept. 21-23, 2½ days, full time	15.00
Oklahoma City Clinical Society, 512 Medical Arts Bldg., Oklahoma City At: Biltmore Hotel	Annual Conference of Oklahoma City Clinical Society	Oct. 30-Nov. 2, 4 days, full time	15.00
American College of Physicians, 4200 Pine St., Philadelphia 4 At: University of Utah College of Medicine, Salt Lake City, Utah	Recent Developments in Medicine	Nov. 6-11, full time	30.00 Mbrs. A. C. P. 60.00 Non-Mbrs.
Medical Society of the District of Columbia, 1718 M St., N. W., Washington, D. C. At: Hotel Statler, Washington, D. C.	Twenty-First Annual Scientific Assembly	Oct. 2-4, full time	3.00 non-members
Medical Society of the State of Pennsylvania, 230 State St., Harrisburg, Pa. At: Ten centers in Pennsylvania	Graduate Education Institute	Fall 1950, 5 sessions in each center	50.00 [14]
Medical College of the State of South Carolina, Charleston 16, S. C.	Founders Day Program	Nov. 2, 1950, 1 day	None

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MEDICINE, GENERAL—Continued			
Anderson County Medical Society, Anderson, S. C. At: Anderson Memorial Hospital	Piedmont Postgraduate Clinical Assembly	Sept. 19-20, 2 days	$5.00
Interstate Postgraduate Medical Association, 16 N. Carroll St., Madison, Wis. At: Hotel Stevens, Chicago, Ill.	International Medical Assembly	Nov. 6-9, 1950, 4 days, full time	5.00
Jackson Clinic, 16 S. Henry St., Madison 3, Wis.	Jackson Clinic Postgraduate Meeting	Fall 1950	None
NEUROLOGY AND PSYCHIATRY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	Neurology	Jan. 4-Feb. 22, 8 weeks, part time	30.00
University of California, University Extension, San Francisco 22 At: Langley Porter Clinic	Psychiatry and Neurology	Aug. 28-Nov. 17, 12 weeks, full time	200.00
University of Colorado Medical Center, 4200 E. 9th Ave., Denver At: Colorado Psychopathic Hospital	Psychosomatic Medicine	Sept. 1950, 1 week	20.00 [6]
Yale University School of Medicine, New Haven, Conn. At: Connecticut State Hospital	Fourth Postgraduate Seminar in Neurology, Psychiatry and Related Fields of Medicine	Oct.-Dec. 1950, 10 weeks, part time	Not given
American Psychiatric Association, 1624 Eye St., Washington 6, D. C. At: St. Louis University, St. Louis	Mental Hospital Institute	Oct. 8, 4 days, full time	50.00
Catholic University of America, Washington 17, D. C. At: St. Elizabeth's Hospital	Principles of Psychotherapy	Oct. 1-Jan. 31, 15 weeks, part time	30.00 [6]
	Dynamic Psychiatry and Psychoanalysis	Oct. 1-Jan. 31, 15 weeks, part time	30.00 [6]
	Advanced Rorschach Analysis	Oct. 1-Jan. 31, 15 weeks, part time	30.00 [6]
	Psychopathology	Oct. 1-Jan. 31, 15 weeks, part time	30.00 [6]
	Clinical Psychiatry	Oct. 1-Jan. 31, 15 weeks, part time	30.00 [6]
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Personal Course in Clinical Neurology	Sept. 27, 10 weeks, part time	80.00
	Personal Course in Neuropathology	By appointment	20.00 per hour
Illinois Neuropsychiatric Institute, 912 S. Wood St., Chicago At: Cook County Hospital	Psychosomatic Demonstrations	Oct. to July, part time	None
	Psychopathological Demonstrations	Oct. to July, part time	None
University of Kansas School of Medicine, Kansas City, Kan. At: University of Kansas Medical Center	Psychosomatic Medicine	Oct. 30-Nov. 1, full time	20.00
Massachusetts Department of Mental Health, 15 Ashburton Place, Boston At: Metropolitan State Hospital, Waltham	Postgraduate Seminar in Neurology and Psychiatry; Review Course in Basic Neurology and Psychiatry	Oct. 6-Dec. 8, part time	None
At: Walter E. Fernald State School, Waverly	Postgraduate Seminar in Neurology and Psychiatry; Course in Pediatric Neuropsychiatry	Oct. 2-Dec. 4, part time	None
At: Boston Psychopathic Hospital	Postgraduate Seminar in Neurology and Psychiatry; Course in Social and Special Psychiatry	Oct. 11-Dec. 6, part time	None
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11	Psychiatry I	Oct. to June, arranged, 1 week, full time	75.00 [6]
Wayne University College of Medicine, 1512 St. Antoine St., Detroit	Problems in Neurology	Sept. 11-Dec. 2, 1950, part time	Not given
University of Minnesota, Center for Continuation Study, Minneapolis 14	Child Psychiatry for General Physicians and Pediatricians	Nov. 27-Dec. 2, 1 week, full time	35.00
American Institute for Psychoanalysis, 22 W. 98th St., New York 25 At: New School for Social Research	Confronting the Modern World—Problems of Children and Adolescents	Arranged, 15 sessions, part time	17.50
At: American Institute	Neuroses and Psychoses	Fifteen sessions, part time	17.50
	Continuous Case Seminar [20]	Ten sessions, part time	20.00
	Psychoanalytic Therapy [20]	Fifteen sessions, part time	30.00
	Clinical Conferences [21]	Ten sessions, part time	20.00
	The Analytic Process [21]	Fifteen sessions, part time	30.00
	Readings in Psychoanalysis Part II	Fifteen sessions, part time	30.00
	Readings in Psychoanalysis Part III (The works of Karen Horney)	Fifteen sessions, part time	30.00
	Sex and Neurosis	Eight sessions, part time	16.00
	Clinical Conferences [21]	Ten sessions, part time	20.00
	Love and Sex in Health and Neurosis	Fifteen sessions, part time	17.50
	Seminar on Personal Case Histories	Fifteen sessions, part time	30.00
	The Analytic Relationship [21]	Fifteen sessions, part time	30.00
	Psychiatry and Psychoanalysis	Fifteen sessions, part time	30.00
	Seminar on Dreams [21]	Fifteen sessions, part time	30.00
	Continuous Case Seminar [21]	Ten sessions, part time	20.00
	Child Analysis	Ten sessions, part time	20.00
Columbia University, 630 W. 168th St., New York At: Columbia-Presbyterian Medical Center	Psychiatry PM 1 Symposium on Neurology and Psychiatry [25]	Oct. 2-Dec. 8, 2 months, full time	250.00
At: Montefiore Hospital	Neurology PM 60 Neuropsychiatry	Nov. 6-Dec. 1, 1 month, full time	150.00
	Neurology PM 61 Advanced Neurology [25]	July 3-Sept. 29, Oct. 2-Dec. 29, 3 months, full time	150.00
At: Mt. Sinai Hospital	Neurology PM 31 Practical Neuroanatomy and Neuropathology	Oct. 2-May 28, 7 months, part time	140.00
	Neurology PM 32 Advanced Practical Neuroanatomy and Neuropathology	Oct. 5-May 31, 7 months, part time	100.00
	Neurology PM 34 Laboratory Training in Clinical Electroencephalography [25]	Any 3 months, full time	150.00

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
NEUROLOGY AND PSYCHIATRY—Continued			
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Jewish Hospital At: Jewish Sanitarium and Hospital for Chronic Diseases	Child Psychiatry	Oct. 1950, 10 weeks, part time	$20.00
	Clinical Neurology	Oct. 1950, 8 weeks, part time	20.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	551-A Neurologic Problems in General Practice	Jan. 8-27, 3 weeks, part time	150.00
	552-A Neuroanatomy and Neurophysiology	Oct. 10-Dec. 16, 10 weeks, part time	150.00
	553-A Neurology	Sept. 25, 1 year, full time	600.00
	641-A Psychiatric Problems in General Practice	Jan. 8-27, 3 weeks, part time	150.00
	646-A Psychiatry in the Practice of Medicine and Pediatrics	Arranged, full time, 3 months	300.00
	647-A Psychiatry and Neurology	Sept. 25-Dec. 2, 10 weeks, full time	300.00
	648-A Psychology and Psychodynamics	Sept. 18-Dec. 16, 3 months, part time	250.00
	649-A Psychiatry	Sept. 25-June 11, full time	600.00 [22]
William Alanson White Institute of Psychiatry, 12 E. 86th St., New York 28 At: Freedom House	Basic Psychiatry	Oct. 2-Dec. 11, 11 weeks, part time	20.00
	Evolution of Psychoanalytic Concepts	Oct. 3-Dec. 12, 11 weeks, part time	20.00
	Psychodynamics [25]	Oct. 2-Dec. 11, 11 weeks, part time	20.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Rd., Portland 1, Ore.	Neurology	Nov. 13-17, 5 days, full time	50.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Neurology-Psychiatry	Oct.-May, 8 months, full time	800.00
	Clinicobiologic Neurology Psychiatry	Oct. 1950, 10 weeks, full time	300.00
University of Texas Postgraduate School of Medicine, 2310 Baldwin St., Houston, Texas	Graduate Neuropathology	Arranged, 10 days, part time [24]	None
NUTRITION			
American College of Physicians, 4200 Pine St., Philadelphia 4 At: Hospital de Enfermedades d la Nutrición, Mexico City, Mx.	Clinical Aspects of Malnutrition	Aug. 14-25, 2 weeks, part time	60.00
New York Medical College, Flower and Fifth Ave. Hospitals, 1 E. 105th St., New York	Nutrition	Arranged, 1 month	150.00
OBSTETRICS AND GYNECOLOGY			
University of California Medical School, University Extension, Los Angeles 24	Recent Advances in Obstetrics and Gynecology	Oct. 1950, 5 days, full time	50.00
Yale University School of Medicine, New Haven, Conn.	Obstetrics 200 Obstetrical Conference	Oct. 3-Dec. 5, part time	35.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Intensive 2 week course in Gynecology	Sept. 25 and Oct. 23, 2 weeks, full time	150.00
	Personal Course in Vaginal Approach to Pelvic Surgery	Sept. 18 and Nov. 6, 1 week full time	100.00
	Personal Course in Gynecologic Surgery	Sept. 7 and Nov. 9, 4 weeks part time	80.00
	Personal Course in Office Gynecology	Sept. 6 and Nov. 8, 4 weeks, part time	80.00
	Two Week Intensive Course in Obstetrics	Sept. 11 and Nov. 6, 2 weeks, full time	150.00
	Personal Course in General and Office Obstetrics	Sept. 6 and Nov. 1, 4 weeks, part time	80.00
	Personal Course in Surgical Obstetrics	July 5 and Oct. 4, 4 weeks, part time	100.00
Michael Reese Hospital Postgraduate School, 20th and Ellis Ave., Chicago 16	Gynecology and Surgery for the General Practitioner	Oct. 4-Mar. 28, part time	150.00
University of Illinois College of Medicine, 1853 W. Polk St., Chicago 12	Refresher Course for Physicians	Any Monday morning, 2 weeks	10.00
	Refresher Course	July 15, 1 week	10.00
Indiana University School of Medicine, Indianapolis	Review Course in Obstetrics and Gynecology	Nov. 6-10, full time	50.00
State University of Iowa College of Medicine, Iowa City At: University Hospital	Postgraduate Conference in Obstetrics and Gynecology	Nov. 1950, 4 days	40.00
University of Kansas School of Medicine, Kansas City, Kan. At: University of Kansas Medical Center	Obstetrics, Gynecology and Pediatrics	Nov. 6-10, full time	30.00
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans	Review in Gynecology (for Specialists)	Jan. 8-13, full time	50.00
University of Maryland School of Medicine, 29 S. Greene St., Baltimore 1 At: University Hospital	Gynecology and Obstetrics	Arranged, 12 weeks, full time	150.00
	Gynecology, Oncology and Female Urology	Arranged, 10 weeks, full time	125.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston At: Boston Lying-in Hospital	Clinical Obstetrics	Oct. and Nov., 1 month, full time	150.00 [6] a month
At: Massachusetts General Hospital	Gynecology 1	July 1-June 30, 12 months, full time	800.00 [6]
	Gynecology 3	Oct. 9-21, 2 weeks, full time	125.00 [6]
At: Free Hospital for Women, Brookline	Gynecology 2	July, August and Sept., 1950, 1 month, full time	150.00 [6] a month
	Pathology of Obstetrics and Gynecology	Jan. 4-May 24, 1951, full time	150.00 [6]
University of Minnesota, Center for Continuation Study, Minneapolis 14	Gynecology for General Physicians	Sept. 28-30, full time	20.00
	Obstetrics for General Physicians	Dec. 15-16, full time	15.00
University of Buffalo School of Medicine, 24 High St., Buffalo	Obstetrics and Gynecology	Fall 1950, 3 days, full time	Not given
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Greenpoint Hospital	Manikin	Oct. 1950, 8 weeks, part time	20.00
	Sterility	Oct. 1950, 12 weeks, part time	40.00

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OBSTETRICS AND GYNECOLOGY—Continued			
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Clinical Gynecology	Arranged, 6 weeks, part time	$75.00
	Clinical and Operative (Cadaver) Gynecology	Arranged, 6 weeks, part time	175.00
	Clinical Course in Office and General Obstetrics	Arranged, 4 weeks, part time	100.00
	Manikin Obstetrics	Arranged, 4 weeks, part time	150.00
	Obstetrics and Gynecology Incl. Manikin Ob. and Operative Gynec. (Cadaver)	Oct. 1950, 2 months, full time	250.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	561-A Seminar in Gynecology	Oct. 9-Dec. 2, 2 months, full time	300.00
	562-A Gynecology Diagnosis and Office Treatment	Oct. 16-Nov. 6, part time	50.00
	563-A Gynecology Diagnosis and Office Treatment	Oct. 9-Nov. 13, part time	75.00
	564-A Obstetrics and Gynecology	Oct. 2, full time, 3, 6 or 9 months	[25]
	565-A Gynecological Pathology	Oct. 2, 9 months, part time	350.00
	566-A Cystoscopy and Endoscopy	Sept. 18-Oct. 20, Nov. 13-Dec. 15, part time	100.00
At: New York University	569-A Surgical Anatomy as Applied to Gynecology [25]	Oct. 17-Nov. 16, Nov. 21-Dec. 19, part time	200.00
	568-A Vaginal Cytology [25]	Oct. 10-Dec. 7, Jan. 2-Feb. 22 part time	100.00
	567-A Gynecological Endocrinology	Oct. 10-Dec. 9, Jan. 2-Feb. 24 part time	150.00
At: Beth Israel Hospital	684-A Gynecology	Sept. 5-Dec. 22, part time	250.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Gynecology PM 30 Recent Advances in Gynecology	Oct. 9-14, 6 days, full time	65.00
At: Margaret Hague Maternity Hospital	Obstetrics PM 80 Internship Training	First of each month, 3 months, full time	350.00
	Obstetrics PM 81 Observation Course	First of each month, 1 month, full time	100.00
Southern Pediatric Seminar, Saluda, N. C.	Obstetrics and Gynecology	July 31-Aug. 5, 1 week	25.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Gynecology-Obstetrics	First Monday of Oct., 8 months, full time	800.00
OPHTHALMOLOGY AND OTOLARYNGOLOGY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33 At: Los Angeles County Hospital	Histology and Histopathology of the Eye	Feb. 28-June 20, 1951, part time	75.00
	Ophthalmology	Jan. 30-Mar. 20, 1951, part time	30.00
	Otolaryngology	Oct. 31-Dec. 19, part time	30.00
University of California Medical Center, San Francisco 22 At: University of California Hospital, San Francisco	Ophthalmology	Sept. 11-15, 1 week, full time	60.00
University of California Medical School, University Extension, Los Angeles 24	Ophthalmology	Nov.-Dec., part time	Not given
University of Florida Graduate School of Medicine, 2033 Riverside Ave., Jacksonville, Fla. At: Miami, Fla.	Midwinter Seminar in Ophthalmology and Otolaryngology	Jan. 1951, 1 week	40.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Two week Clinical Course in Ophthalmology	First of every week, full time	50.00
	Two week Clinical Course in Otolaryngology	First of every week, full time	50.00
	Clinical and Didactic Course in Reconstructive Surgery of the Nasal Septum and the External Nasal Pyramid	To be announced, 8 weeks, part time	150.00
Northwestern University, 303 E. Chicago Ave., Chicago At: Wesley Memorial Hospital	Postgraduate Course on Endaural Otologic Surgery and Audiology	Oct., 4 weeks, full time	500.00
University of Illinois College of Medicine, 1853 W. Polk St., Chicago	Basic Otolaryngology	Oct. 2-June 19, 9 months, full time	750.00
	Postgraduate Course in Ophthalmology	Oct. 2-May 25, 8 months, full time	700.00
State University of Iowa College of Medicine, Iowa City, Iowa At: University Hospital	Postgraduate Conference in Otolaryngology	Nov. 27-Dec. 1, 5 days	75.00
Tulane University School of Medicine, Dept. of Ophthalmology, 1430 Tulane Ave., New Orleans 12	Gonioscopy [25]	Jan. 8-13, full time	100.00
Ophthalmological Study Council, 243 Charles St., Boston At: Westbrook Jr. College, Portland, Maine	Lancaster Courses in Ophthalmology	June 24-Sept. 9, 11 weeks	300.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11	Ophthalmology	Oct. 2-27, Jan. 8-Feb. 2, 4 weeks, part time	75.00 [6]
	Ophthalmoscopy	Oct. 30-Nov. 24, part time	50.00 [6]
	Neuro-Ophthalmology	Nov. 13-17, full time	75.00 [6]
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston	Basic Sciences in Ophthalmology, Clinical Ophthalmology and Ocular Pathology, Fundamentals in Refraction and Ocular Motility	Sept. 25-Mar. 3, 21 weeks	700.00 [6]
	Histopathology-Otolaryngology	Nov. 6-Dec. 2, 4 weeks, full time	Not given
	Audiology	Dec. 4-16, full time	Not given
	Anatomy of the Head and Neck	Jan. 2-Feb. 7, full time	Not given
	Anatomy of the Temporal Bone	Feb. 19-Mar. 31, full time	Not given
Wayne University College of Medicine, 1512 St. Antoine St., Detroit	Basic Ophthalmology	Sept. 11-June 9, 9 months, full time	900.00
	Histopathology of Ear, Nose and Throat	Dec. 4-Mar. 10, 12 weeks, part time	25.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave., Rochester, Minn. At: Palmer House, Chicago, Ill.	Instruction Courses	Oct. 9-13, 5 days	1.50 per hour
	Home Study Course in Ophthalmology; Home Study Course in Otolaryngology	Sept. 1-June 30, 10 months, part time	10.00

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued			
Washington University Medical School, 4580 Scott Ave., St. Louis 10	Ophthalmology	Oct. 1950, 8 months	$800.00
	Otolaryngology	Oct. 1950, 8 months	800.00
Essex County Medical Society, 3840 Clinton St., Newark, N. J.			
At: Newark Eye and Ear Infirmary	Medical Ophthalmology	Oct. 1950, part time, 10 sessions	60.00
At: Seton Hall Campus, South Orange	Otolaryngology	Oct. 1950, 20 sessions, part time	100.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2]			
At: Jewish Sanitarium and Hospital for Chronic Diseases	External Eye Diseases	Oct. 1950, 8 weeks, part time	20.00
	Ophthalmoscopy	Oct. 1950, 8 weeks, part time	20.00
	Advanced Otology	Arranged, 2 weeks, part time	250.00
	Ophthalmology Including Cadaver Ophthalmology and Refraction	Arranged, 3 months, part time	300.00
	Motor Anomalies	Arranged, 4 weeks, part time	50.00
	Refraction	Arranged, 4 weeks, part time	100.00
	Otolaryngology and Ophthalmology Including Cadaver Eye, Ear, Nose and Throat and Refraction	Oct. and Jan., 3 months, part time	600.00
	Otolaryngology and Ophthalmology	Oct. 1, 9 months, full time	1,000.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Operative Ophthalmology (Cadaver)	Arranged, 4 weeks, part time	100.00
	Operative Otology	Arranged, 4 weeks, part time	100.00
	Operative Nose and Throat (Cadaver)	Arranged, 4 weeks, part time	150.00
	Seminar in Ophthalmology and Otolaryngology	Arranged, 5 days, part time	50.00
	Clinical Ophthalmology	Six weeks or 3 months, arranged, part time	75; 100
	Clinical Otolaryngology	Six weeks or 3 months, arranged, part time	100; 150
	Clinical Ophthalmology and Otolaryngology	Six weeks or 3 months, arranged, full time	150; 250
University of Rochester School of Medicine, 260 Crittenden Blvd., Rochester, N. Y.	Ophthalmology	June 26-29, full time	Not given
Columbia University, 630 W. 168th St., New York			
At: Columbia Presbyterian Medical Center	Otolaryngology PM 1 Bronchoscopy [35]	Oct. 9-27, 2 weeks, part time	250.00
At: Montefiore Hospital	Ophthalmology PM 62 Glaucoma [35]	Oct. 16-Dec. 11, 2 months, part time	30.00
At: Mt. Sinai Hospital	Ophthalmology PM 30 Slit Lamp Microscopy of the Living Eye [35]	Oct. 5-Nov. 30, part time	40.00
	Ophthalmology PM 31 Ophthalmic Surgery [35]	Oct. 4-Dec. 6, part time	90.00
	Ophthalmology PM 32 Refraction and Extraocular Muscles [35]	Oct 6-Dec. 22, part time	80.00
	Ophthalmology PM 33 Glaucoma and the Pharmacology of the Autonomic Nervous System [35]	Sept. 28-Nov. 16, part time	20.00
	Ophthalmology PM 34 Histopathology of the Eye [35]	Oct. 5-Dec. 18, part time	55.00
	Ophthalmology PM 35 Bacteriology of the Eye and External Diseases [35]	Oct. 2-Dec. 18, part time	45.00
	Ophthalmology PM 36 Embryology of the Eye [35]	Oct. 4-Nov. 22, part time	40.00
	Ophthalmology PM 37 Physiological Optics [35]	Oct. 9-Dec. 11, part time	45.00
	Ophthalmology PM 38 Ophthalmoscopy Advanced Course [35]	Oct. 4-Nov. 22, part time	40.00
	Ophthalmology PM 40 Techniques of Systematic Examination of the Eye and Functional Testing [35]	Sept. 27-Dec. 13, part time	25.00
	Otolaryngology PM 30 Practical Pathology of the Ear [35]	Oct. 17-Nov. 24, part time	50.00
	Ophthalmology 39B Ophthalmoscopy in General Practice	Sept. 28-Dec. 21, part time	25.00
	Ophthalmology PM 42 Medical Ophthalmology	Sept. 26-Dec. 12, part time	25.00
At: Columbia Presbyterian Medical Center	Otolaryngology PM 10 Advanced Otolaryngology [35]	Any 3 consecutive months between Sept. and May, full time	150.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	571-A Motor Anomalies of the Eye Part I [35]	Oct. 16-21, full time	100.00
	572-A Motor Anomalies of the Eye Part II [35]	Oct. 23-27, full time	75.00
	573-A Ophthalmic Neurology [35]	Nov. 6-10, part time	50.00
	574-A Surgery of the Eye [35]	Oct. 30-Nov. 4, full time	100.00
	575-A Differential Diagnosis with the Slit Lamp [35]	Nov. 6-10, part time	75.00
	576-A Ophthalmology [35]	Sept. 25-June 16, full time	600.00
	577-A External Diseases of the Eye [35]	Nov. 6-10, part time	75.00
	578-A Ocular Expressions of Systemic Diseases [35]	Nov. 6-10, part time	75.00
	591-A Intensive Course in Basic Science	Sept. 18-29, part time	75.00
	592-A Histopathology of the Ear, Nose and Throat	Sept. 18-29, part time	75.00
	593-A Basic Sciences of Otolaryngology	Oct. 2-June 15, full time	600.00
	594-A Endaural Surgery	Nov. 13-Nov. 24, full time	125.00
	595-A Bronchoscopy, Esophagoscopy and Laryngeal Neck Surgery	Jan. 15-26, full time	200.00

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued			
At: New York Eye and Ear Infirmary	68A1 Clinical Histopathology of the Eye [35]	Sept.-June, part time	$50.00
	68A2 Histopathology of the Eye [35]	Sept.-June, arranged	100.00
	68A3 Bacteriology, Serology, Immunology [35]	Sept.-June, arranged	50.00
	68A4 External Diseases of the Eye [35]	Sept.-June, arranged	50.00
	68A6 Physiologic Optics [35]	Sept.-June, arranged	100.00
	68A7 Plastic Eye Surgery [35]	Sept.-June, arranged	100.00
	68A8 Anomalies of Extraocular Muscles [35]	Sept.-June, arranged	50.00
	68A9 Slit Lamp Miroscopy [35]	Sept.-June, arranged	50.00
	68A10 Ophthalmoscopy [35]	Sept.-June, arranged	50.00
	68A11 Glaucoma [35]	Sept.-June, arranged	50.00
	68A12 Operative Eye Surgery [35]	Sept.-June, arranged	100.00
	68A13 Refraction [35]	Sept.-June, arranged	100.00
	68A14 Perimetry [35]	Sept.-June, arranged	50.00
	68B1 Clinical Otology [35]	Sept.-June, arranged	75.00
	68B2 Operative Surgery of the Ear and Surgery of the Nasal Sinuses [35]	Sept.-June, arranged	200.00
	68B3 Bronchoesophagology and Laryngeal Surgery [35]	Sept.-June, arranged	250.00
	68C1 Course in Allergy of the Eyes and Upper Respiratory Tract [35]	Sept.-June, arranged	100.00
	68C2 Roentgenology [35]	Sept.-June, arranged	75.00
	68C3 Roentgenology [35]	Sept.-June, arranged	50.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Otolaryngology	Oct.-May, full time	800.00
	Ophthalmology	Oct.-May, full time	800.00
Virginia Society of Ophthalmology and Otolaryngology, Richmond, Va.	Postgraduate Course in Ophthalmology and Otolaryngology [35]	Nov. 28-29 (eye) Nov. 30-Dec. 1 (E.N.T.)	25.00
ORTHOPEDIC SURGERY			
University of California, University Extension, San Francisco 22	Bone and Joint Surgery	Dec. 4-8, full time	Not given
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Anatomy of the Extremities on the Cadaver	Oct. 4, 10 weeks, part time	125.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Treatment of Fractures and Other Traumatic Conditions	Oct. 30-Nov. 4, full time	150.00 [6]
Columbia University, 630 West 168th St., New York At: Hospital for Joint Diseases	Orthopedic Surgery PM 80 Survey of the Essentials of Orthopedics	Oct. 3-Dec. 21, part time	100.00
New York Academy of Medicine, 2 E. 103d St., New York 29	Musculo-Skeletal System	Oct. 9-20, full time	10.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Orthopedic Surgery for General Surgeons	Arranged, 3 months, part time	75.00
	Operative Orthopedics (Cadaver)	Arranged, 5 sessions, part time	100.00
	Advanced Orthopedics of the Foot	Arranged, 8 sessions, part time	100.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	582-A Orthopedics in General Practice	Nov. 20-25, full time	60.00
	583-A Functional Anatomy in Relation to Orthopedics	Sept. 11-22, Jan. 15-26, part time	75.00
	584-A Basic Sciences in Relation to Orthopedic Surgery	Sept. 25-June 16, 9 months, full time	600.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Orthopedics	Oct.-May, full time	800.00
PATHOLOGY			
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Personal Course in Surgical Pathology	By appointment, 2 or 4 weeks, full time	150.00 2 wks. 250.00 4 wks.
	Personal Course in Surgical Pathology on Selective Subjects	By appointment, arranged	15.00 per hr.
	Six month Clinical Course in Gross and Microscopic Pathology	By appointment, full time	500.00
	Twelve month Course in Gross and Microscopic Pathology	By appointment, full time	500.00
	Twelve month Department Course in Gross and Surgical Pathology	By appointment, full time	900.00
	Personal Course in Surgical Pathology, Gross and Microscopic	Oct. 4, 10 weeks, part time	100.00
	Personal Course in General Pathology, a Basic Course	Oct. 6, 10 weeks, part time	100.00
	Personal Course in Pathology and Laboratory Medicine	Sept. 13, 10 weeks, part time	100.00
University of Maryland School of Medicine, 29 S. Greene St., Baltimore	Pathology "C" Neuropathology	Arranged, 6 months, full time	200.00 [36]
	Pathology "B"	Arranged, 6 months, full time	150.00
University of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Pathology	Sept. 25-Dec. 2, 10 weeks	Not given
Wayne University College of Medicine, 1512 St. Antoine St., Detroit	Pathology of Neoplasms	Dec. 4-Mar. 10, 12 weeks, part time	50.00
	Neuropathology	Dec. 4-Mar. 10, 12 weeks, part time	50.00
	Surgical Pathology	Sept. 11-Dec. 2, 12 weeks, part time	50.00
Essex County Medical Society, 3840 Clinton St., Newark, N. J. At: Seton Hall Campus, South Orange, N. J.	Gynecological Pathology	Oct. 1950, 16 sessions, part time	100.00
	Surgical Pathology 5F	Oct. 1950, 30 sessions, part time	200.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Pathology PM 30 General and Special Pathology	Sept. 30-Jan. 6, 3 months, part time	60.00
At: Columbia Presbyterian Medical Center	Pathology PM 1 Surgical Pathology	Arranged throughout the year, full time	50.00 per month

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Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PATHOLOGY—Continued		
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Beth El Hospital	Gynecological Pathology	Oct. 1950, 8 weeks, part time	$30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 1 E. 105th St., New York	Pathology	Arranged, 16 weeks, part time	200.00
New York Polyclinic Medical School, 345 W. 50th St., New York	Pathology	Three months, part time, arranged	300.00
	Pathology	Twelve months, part time, arranged	1,000.00
	Pathology for Surgeons	One month, part time, arranged	100.00
	Surgical Pathology	Three months, part time, arranged	300.00
	Urological Pathology	Three months, part time, arranged	50.00
	Blood Transfusions	Two weeks, part time, arranged	100.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	441-A Gynecological Pathology [33]	Sept. 20-Jan. 3, part time	100.00
	442-A Surgical Pathology [33]	Sept. 19-Dec. 28, part time	200.00
	443-A General Pathology	Sept. 25-Dec. 15, part time	175.00
	445-A Radiation Pathology	Oct. 2-Dec. 2, part time	100.00
	686-A Pathology for Surgeons	Oct. 16-Nov. 27, part time	50.00
At: Lenox Hill Hospital	687-A Histopathology for Gynecologists	Oct. 17-Nov. 24, part time	50.00
University of South Dakota School of Medicine, Vermillion, S. D.	Gross and Histopathology	Sept. 1950, 4½ months, full time	75.00
	PEDIATRICS		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Informal Refresher Course in Clinical Pediatrics	Every week, 2 or 4 weeks, full time	60.00 2 wks. 100.00 4 wks.
	Twelve month Department Course in Pediatrics	Sept. 1, 12 months, full time	750.00
	Two week Personal Course in Cerebral Palsy	July 31, 2 weeks, full time	150.00
	Personal Course in Pediatrics	Sept. 27, 10 weeks, part time	80.00
Children's Memorial Hospital, 707 Fullerton Ave., Chicago	Pediatrics	Oct. 2-28, 4 weeks	100.00
State University of Iowa College of Medicine, Iowa City, Iowa At: University Hospitals	Postgraduate Conference in Pediatrics [27]	Mid-October 1950, 2 days	10.00 [28]
Louisiana State University School of Medicine, 1542 Tulane Ave., New Orleans, La.	Refresher Course in Pediatrics	Nov. or Dec., full time, 5 days	None
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Pediatrics 1	Oct. 1-May 31, full time	800.00 [6]
	Pediatric Endocrinology	Oct. 2-7, full time, 1 week	75.00 [6]
At: Children's Hospital	Pediatrics 2	Sept. 5-Dec. 21, Jan. 2-Apr. 28, full time	500.00 [6]
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11	Pediatrics	Nov. 27-Dec. 9, full time	75.00 [6]
University of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Pediatrics [29]	Oct. 1950, 3½ days, full time	25.00 [30]
Washington University Medical School, 4580 Scott St., St. Louis	Refresher Course in Pediatrics	Sept. 13, 6 weeks	200.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Pediatrics PM 30 Clinical Pediatrics	Oct. 3-Dec. 12, 10 weeks, part time	80.00
	Pediatrics PM 31 Allergy in Children	Oct. 13-Dec. 1, 7 weeks, part time	30.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Beth El Hospital	Clinical Pediatrics	Oct. 1950, 5 weeks, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 1 East 105th St., New York	Pediatric Allergy	Oct.-Mar., part time	300.00
	Clinical Pediatrics	Arranged, 1, 3, 6, 9 months and 1 year	[32]
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Pediatrics	Arranged, 4 weeks, part time	75.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	611-A Clinical Pediatrics	Oct. 16-Dec. 22, 10 weeks, part time	125.00
	612-A Clinical Pediatrics	Sept. 18-Oct. 4, Jan. 8-Feb. 3 4 weeks, full time	150.00
	613-A Practical Clinical Pediatrics	Oct. 16-Nov. 10, 4 weeks, full time	125.00
	614-A Review of Clinical Pediatrics	Nov. 20-25, 6 days, full time	60.00
	615-A Pediatrics Endocrinology	Nov. 1-3, full time	75.00
	617-A Allergy for Pediatricians	Oct. 2-6, full time	75.00
	618-A Cardiology for Pediatricians	Dec. 4-8, full time	75.00
	6110-A Pediatrics	Sept. 25-June 16, full time	600.00
	688-A Pediatrics	Sept. 12-Nov. 3, part time	50.00
	689-A Pediatrics	Sept. 19-Dec. 12, part time	75.00
Southern Pediatric Seminar, Inc., Saluda, N. C.	Southern Pediatric Seminar	July 17-29, 2 weeks	40.00
University of Oklahoma School of Medicine, Oklahoma City	General Pediatrics	Dec. 1950, 3 days	15.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Pediatrics	Oct.-May, full time	800.00
	PHARMACOLOGY		
Wayne University College of Medicine, 1512 St. Antoine St., Detroit	Survey of Pharmacology	Sept. 11-Dec. 2, 12 weeks, part time	15.00
	PHYSICAL MEDICINE		
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Physical Medicine PM 30 Physical Therapy in General Practice	Oct. 3-Jan. 25, part time	85.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Kings County Hospital	Physical Medicine	Oct. 1950, 5 weeks, part time	20.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Physical Medicine	Arranged, 4 weeks, part time	100.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	621-A Physical Medicine and Rehabilitation	Sept. 25-June 16, Jan. 15-Oct. 13 full time	600.00
	622-A Physical Medicine and Rehabilitation	Sept 11, 12 or 24 weeks, full time	200.00 12 wks. 400.00 24 wks.
	623-A Physical Medicine and Rehabilitation	Sept. 11-Oct. 21, Jan. 15-Feb. 24, full time	100.00

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PHYSIOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Clinical Physiology, a Basic Course	Oct. 3, 10 weeks, part time	$100.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave., Chicago 16	Applications of Physiology, Biochemistry to Medicine	Oct. 4-Mar. 28, part time	150.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Physiology PM 30 Physiology of the Digestive Tract	Oct. 4-Dec. 8, part time	40.00
New York Medical College, Flower and Fifth Ave. Hospitals, 1 E. 105th St., New York	Physiology of the Cardiovascular System and Blood	Arranged, 1 month	75.00
	Physiology of Respiration	Arranged, 1 month	75.00
	Physiology of the Nervous System	Arranged, 2 weeks	50.00
	Physiology of the Endocrine System	Arranged, 1 month	75.00
	Physiology and Chemistry of the Gastrointestinal Tract and Digestion	Arranged, 1 month	150.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	461-A Basic Science Physiology	Sept. 27-June 13, part time	90.00
	545-A Normal and Pathological Physiology, Functional and Chemical Aspect	Jan. 3-Feb. 21, part time	40.00
	5420-A Normal and Pathological Physiology	Sept. 18-29, full time	115.00
Southwestern Medical School, 2211 Oak Lawn Ave., Dallas, Texas	Pathological Physiology	Sept.-June, part time	10.00
	PHYSIOLOGICAL CHEMISTRY		
Wayne University College of Medicine, 1512 St. Antoine St., Detroit	Intermediary Metabolism	Dec. 4-Mar. 10, 12 weeks, part time	15.00
	Physiological Chemistry Seminar	Sept. 11-Dec. 2, Dec. 4-Mar. 10, part time	15.00
	Biological Catalysts	Sept. 11-Dec. 2, part time	15.00
	PLASTIC SURGERY		
University of California, University Extension, Medical Center, San Francisco 22	Amputation Surgery and Prosthetic Devices	Dec. 11-14, full time	Not given
	POLIOMYELITIS		
National Foundation for Infantile Paralysis, 120 Broadway, New York			
At: Stanford University, San Francisco, Calif.	Treatment of Poliomyelitis	June 12-14, full time	None
At: Orthopaedic Hospital, Los Angeles, Calif.	Poliomyelitis	Oct. 9-12, full time	15.00
At: University of Colorado, Denver, Colo.	Physicians Postgraduate Poliomyelitis Course	Nov. 13-18, full time	75.00 [31]
At: Georgia Warm Springs Foundation	Care of Convalescent Poliomyelitis	First week July, Oct. and Jan., 5 days, full time	None
At: The Children's Hospital, Boston, Mass.	Infantile Paralysis, Acute and Early Convalescent Stages	Aug. 7-11	50.00
At: The D. T. Watson School of Physiatrics, Leetsdale, Pa.	Essentials in Care of Acute Polio	Summer, 5 days	10.00
University of Minnesota, Center for Continuation Study, Minneapolis 14	Poliomyelitis for General Physicians	Nov. 9-11, 3 days, full time	20.00
	PROCTOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	Proctology	Jan. 4-Mar. 8, part time	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Lecture and Cadaver Course in Proctology	Sept. 15, 5 weeks, part time	75.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11	Proctology I	Oct. 16-20, full time	40.00 [9]
Essex County Medical Society, 3840 Clinton St., Newark, N. J. At: Seton Hall Campus, South Orange, N. J.	Proctology	Oct. 1950, part time, 8 sessions	50.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Jewish Hospital	Proctology	Oct. 1950, 6 weeks, part time	40.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Clinical Proctology	Arranged, 6 weeks, part time	75.00
	Clinical and Cadaver Proctology	Arranged, 6 weeks, part time	175.00
	Clinical Gastroenterology	Arranged, 6 weeks, part time	75.00
	Proctology Gastroenterology	Oct. and Jan., part time	200.00
	Clinical Proctology and Gastroenterology	Arranged, part time	100.00
	PUBLIC HEALTH		
Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga.	Laboratory Diagnosis of Parasitic Diseases:		
	Part 1, Intestinal Parasites	Sept. 18-Oct. 6, 3 weeks, full time	None
	Part 2, Blood Parasites	Oct. 9-27, 3 weeks, full time	None
	Laboratory Diagnosis of Enteric Diseases:		
	Part 1, Introductory Enteric Bacteriology	Oct. 9-13, 5 days, full time	None
	Part 2, Advanced Enteric Bacteriology	Oct. 16-27, full time	None
	Laboratory Diagnosis of Bacterial Diseases:		
	Part 1, General Bacteriology	Sept. 11-22, full time	None
	Part 2, General Bacteriology	Sept. 25-Oct. 6, full time	None
	Serological Diagnosis of Rickettsial Diseases	Nov. 6-10, full time	None
	Virus Isolation and Identification Techniques	Nov. 13-17, full time	None
	Identification of Medically Important Arthropods	Nov. 13-24, full time	None
	Laboratory Diagnosis of Influenza	Nov. 20-24, full time	None
	Laboratory Diagnosis of Rabies	Nov. 27-Dec. 1	None

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PUBLIC HEALTH—Continued		
Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga.	Laboratory Diagnosis of Tuberculosis	Dec. 4-15	None
	Laboratory Diagnosis of Virus Diseases	Arranged, 2 to 4 weeks	None
	Phage Typing of Salmonella Typhosa	Arranged, 1 week	None
	Laboratory Diagnosis of Malaria	Arranged, 2 weeks	None
Tulane University of Louisiana, 1430 Tulane Ave., New Orleans 12	Tropical Medicine (Public Health)	Begins Sept. 20, 9 months	$500.00
Johns Hopkins University School of Hygiene and Public Health, 615 N. Wolfe St., Baltimore 5	Public Health	Sept. 28-May 26, full time	800.00
University of Michigan School of Public Health, Ann Arbor, Mich.	Public Health	Sept. 25-Feb. 2, 24 weeks	Not given
University of North Carolina, School of Public Health, Chapel Hill, N. C.	Public Health	Sept.-June	100.00 per qtr.
	PULMONARY DISEASES		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	Acute and Chronic Thoracic Diseases	Sept. 26-Dec. 12, part time	50.00
Yale University School of Medicine, New Haven, Conn.	Medicine 209 Diseases of the Chest	Arranged, 11 sessions, part time	45.00
U. S. Public Health Service, Communicable Disease Center, Atlanta, Ga.	Laboratory Diagnosis of Tuberculosis	Aug. 21-Sept. 7, Dec. 4-15	None
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Personal Course in the Technic of Physical Examination and Diagnosis of the Chest	Sept. 20, 8 weeks, part time	60.00
American College of Chest Physicians, 500 N. Dearborn St., Chicago			
At: University of California, San Francisco, Calif.	Postgraduate Course in Diseases of the Chest	Feb. 19-23, 1951	50.00
At: St. Clair Hotel, Chicago	Postgraduate Course in Diseases of the Chest	Oct. 16-20	50.00
At: Hotel New Yorker, New York	Postgraduate Course in Diseases of the Chest	Nov. 13-17	50.00
University of Minnesota, Center for Continuation Study, Minneapolis 14	Diseases of the Chest for General Physicians	Oct. 26-28, full time	20.00
State Sanatorium, Sanatorium, Miss.	Internal Medicine and Chest Diseases	Year round, 6 weeks or 12 months	None
Albany Medical College, Albany, N. Y.	A Survey of Chest Diseases	Fall 1950, 8 sessions, part time	Not given
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 37 Diseases of the Chest	Oct. 17-Dec. 12, part time	60.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York At: Municipal Sanatorium, Otisville, N. Y.	Pulmonary Tuberculosis	Arranged, 3 weeks, full time	175.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	548-A Acute and Chronic Diseases of the Chest	Jan. 2-Feb. 20, part time	50.00
Temple University School of Medicine, 3400 N. Broad St., Philadelphia 40, Pa.	Course in Bronchoesophagology	Sept. 25-Oct. 6	250.00
	RADIOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Clinical and Didactic Course in Diagnostic Roentgenology and Fluoroscopy	First Monday of each month, 2 weeks, full time	125.00
	Routine Clinical Course in Diagnostic Roentgenology and Fluoroscopy	Third Monday of each month, 2 or 4 weeks, full time	125.00 4 wks. 70.00 2 wks. [87]
	High and Low Voltage X-Ray Therapy	First of every week, 1 or more weeks	
	Eight month Course in Diagnostic Roentgenology	By appointment, 8 months, full time	500.00
	Twelve month Course in Diagnostic Roentgenology and X-ray Therapy	By appointment, full time	750.00
	Clinical Interpretation of X-Ray Findings	Sept. 21, 10 weeks, part time	80.00
University of Kansas School of Medicine, Kansas City 3, Kan. At: University of Kansas Medical Center	Radiology	Jan. 8-10, full time	20.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15			
At: Peter Bent Brigham Hospital	General Radiology 1	Throughout the year, 1 month or longer, full time	150.00 per month
At: Massachusetts General Hospital	General Radiology 2	Throughout the year, 1 month or longer, full time	150.00 per month
At: Boston City Hospital	General Radiology 3	Throughout the year, 1 month or longer, full time	150.00 per month
At: Children's Hospital	Pediatric Radiology	Throughout the year, 1 month or longer, full time	150.00 per month
Wayne University College of Medicine, 1512 St. Antoine St., Detroit At: Receiving Hospital	Medical X-Ray Conference	Sept. 11-Dec. 2, Dec. 4-Mar. 10, 12 weeks, part time	15.00
University of Minnesota, Center for Continuation Study, Minneapolis 14	Roentgenology of the Nervous System for Radiologists and Neurologists	Oct. 30-Nov. 4, full time	35.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Radiology PM 30 Introduction to Nuclear Physics for Physicians	Oct. 10-Jan. 23, part time	60.00
At: Hospital for Joint Diseases	Radiology PM 80 Roentgenographic Interpretation of the Diseases of Bones and Joints	Nov. 15-Feb. 14, part time	150.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [2] At: Jewish Hospital	X-Ray Diagnosis	Oct. 1950, 10 weeks, part time	20.00
At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Radiology	Oct. 1950, 10 weeks, part time	20.00

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	RADIOLOGY—Continued		
New York Medical College, Flower and Fifth Ave. Hospitals, 1 East 105th St., New York	Diagnostic Roentgenology	Every 6 weeks, 6 weeks, except summer months, part time	$150.00
New York Polyclinic Medical School, 345 W. 50th St., New York	Practical Course in Superficial and Deep X-Ray Therapy	Arranged, 4 weeks, part time	100.00
	Advanced Course in Radiotherapy	Arranged, 4 weeks, part time	100.00
	Roentgen Interpretation and Technic	Three months, full time, Oct. and Jan.	300.00
	Advanced Diagnostic Roentgenology and Radiotherapy	Three months, full time, Oct. and Jan.	300.00
	Diagnostic Roentgenology and Radiation Therapy	Twelve months, full time, Oct. and Jan.	1,000.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	651-A Diagnostic Radiology for General Practitioners	Oct. 6-May 18, part time	100.00
	652-A Diagnostic Radiology	Sept. 11-Dec. 1, part time	100.00
	656-A Radiology Basic Science	Sept. 25-June 16, full time	600.00
	655-A Radiophysics	Oct. 24-Feb. 6, part time	75.00
	656-A Radiology	Arranged, Sept. 5, 12 months, full time	600.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Rd., Portland 1, Ore.	Diagnostic Roentgenology	Oct. 23-27, full time	50.00
Oak Ridge Institute of Nuclear Studies, Inc., P. O. Box 117, Oak Ridge, Tenn.	Radioisotope Techniques in Research	July 3, 31 and Jan. 2, 1 month	25.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Radiology	Oct.-May, full time	800.00
American Roentgen Ray Society, Germantown Hospital, Philadelphia 44 At: Jefferson Hotel, St. Louis, Mo.	Instruction Course in Radiology	Sept. 26-29, full time	25.00 [32]
University of Texas Postgraduate School of Medicine, 2310 Baldwin St., Houston, Texas At: M. D. Anderson Hospital for Cancer Research	Radiological Physics	Once weekly, 5 months	None
	SURGERY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	Traumatic Surgery	Oct. 3-Dec. 14, part time	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Intensive 2 week Course in Surgical Technic	July 24, Aug. 21, Sept. 25, Oct. 23 and Nov. 27, full time	200.00
	Intensive 4 week Course in Surgical Technic, Surgical Anatomy, Clinical Surgery, Preoperative and Postoperative Management	July 10, Aug. 7, Sept. 11, Oct. 9 and Nov. 6, full time	300.00
	Two week Personal Course in General Surgery	Sept. 25, 2 weeks, full time	250.00
	One week Personal Course in Surgery of Colon and Rectum	Sept. 11, Oct. 9 and Nov. 27, full time	100.00
	Two week Course in Surgical Anatomy on the Cadaver, Clinical Surgery, Preoperative and Postoperative Management	July 24, Aug. 21, Sept. 25, Oct. 23, Nov. 20, full time	150.00
	Personal Course in Clinical Surgery	Sept. 7, 10 weeks, part time	150.00
	Personal Course in Surgical Diagnosis, Preoperative and Postoperative Management	Sept. 20, 10 weeks, part time	100.00
	Personal Course in Thoracic Surgery	Sept. 13, 10 weeks, part time	100.00
	Personal Course in Esophageal Surgery	Oct. 3, 10 weeks, part time	150.00
	One week Personal Course in Thoracic Surgery	Oct. 9, 1 week, full time	100.00
	One week Personal Course in Breast and Thyroid Surgery	Oct. 2, 1 week, full time	150.00
	One week Personal Course in Esophageal Surgery	Oct. 16, full time	150.00
	Ten hour Personal Course in Gallbladder Surgery	Oct. 23, 1 week, full time	100.00
	Ten hour Course in Treatment of Varicose Veins	Every Monday, 1 week, full time	40.00
	Ten hour Course in Treatment of Varicose Veins	First and 3d Monday each month, 2 weeks, part time	40.00
	Surgical Anatomy on the Cadaver	Oct. 5, 10 weeks, part time	125.00
	Lecture Course in Basic Principles Concerned in General Surgery	Sept. 15, 10 weeks, part time	100.00
	Surgical Technic with Practice	Sept. 6, 10 weeks, part time	200.00
	Intensive Review Course Considering Basic Principles in General Surgery	Sept. 11, 2 weeks, part time	200.00
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans 12	Review in Surgery and Traumatology	Jan. 15-20, full time	50.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Experimental and Clinical Surgery	July 1-June 30, full time	800.00 [6]
	Endoscopy	Throughout the year, arranged, 3 months, full time	275.00 [6]
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11	Traumatic Surgery	Nov. 2-4, full time	30.00 [6]
	Surgical Anatomy	Oct. 30-Dec. 22, part time	250.00 [6]
Wayne University College of Medicine, 1512 St. Antoine St., Detroit	Surgery Seminar	Sept. 11-Dec. 2, Dec. 4-Mar. 10, part time	15.00
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Clinical Exercises for Practitioners	Oct. 18-Dec. 20, 10 weeks, part time	25.00
Washington University Medical School, 4580 Scott Ave., St. Louis	Management of Surgical Emergencies	Oct. 1950, 3 days	25.00
Essex County Medical Society, 3840 Clinton St., Newark, N. J. At: Newark City Hospital	Surgical Technique and Principles of Abdominal Surgery [33]	Oct. 1950, 20 sessions, part time	200.00

References will be found on page 589.

Postgraduate Courses for Practicing Physicians—July 1, 1950 to Jan. 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	SURGERY—Continued		
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Surgery PM 30 Surgery of the Gastrointestinal Tract [35]	Oct. 9-Nov. 3, 5 weeks, full time	$150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Combined Surgical Course Including Cadaver Surgery and Gynecology	Oct., Jan., 3 months, full time	350.00
	Clinical Surgery	Oct., Jan., 6 weeks, full time	100.00
	Clinical and Operative Surgery (Cadaver)	Oct., Jan., 6 weeks, full time	200.00
	Traumatic Surgery, Including General Surgery, Orthopedic Surgery and Physical Medicine	Arranged, 2 months, part time	200.00
New York Medical College, Flower and Fifth Ave. Hospitals, 1 East 105th St., New York	Surgical Technique	Arranged, 50 hours	375.00
	Thoracic Surgery	Arranged, 3 weeks, full time	325.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	661-A Review of General Surgery [35]	Oct. 23-Nov. 18, full time	300.00
	663-A Recent Advances in Surgery	Sept. 18-28, full time	175.00
	665-A Surgery	Sept. 25-June 16, full time	600.00
	6812-A Diagnosis and Treatment of Trauma	Dec. 4-9, full time	100.00
University of Buffalo School of Medicine, 24 High St., Buffalo	Surgical Techniques	Fall 1950, 3 days, full time	Not given
University of Oklahoma School of Medicine, 800 N. E. 13th St., Oklahoma City	Traumatic Surgery	Sept. 24-25, 2 days	10.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Rd., Portland 1, Ore.	General Surgery	Oct. 30-Nov. 3, full time	50.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	General Surgery	Oct.-May, full time	800.00
Dallas Southern Clinical Society, Medical Arts Bldg., Dallas 1, Texas At: Melrose Hotel	Surgery	Oct. 9-11	25.00
	THERAPY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	Physical Therapy	Oct. 4-Nov. 22, part time	30.00
University of Kansas School of Medicine, Kansas City 3, Kan. At: University of Kansas Medical Center	Therapeutics	Dec. 11-13, full time	20.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 44 Recent Advances in Therapy	Oct. 18-Dec. 6, part time	35.00
New York Medical College, Flower and Fifth Ave. Hospitals, 1 East 105th St., New York	Radium and Roentgen Therapy	Arranged, 6 weeks, part time	150.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16 [3] At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Therapeutics	Oct. 1950, 6 weeks, part time	30.00
	TROPICAL MEDICINE		
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans	Common Infections in Warm Climates	Oct. 16-27, 2 weeks, full time	100.00
New York University Postgraduate Medical School, 477 First Ave., New York 16	631-A Tropical Medicine	Oct. 2-Nov. 29, full time	250.00
	UROLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33	General Urology	Jan. 3-Feb. 28, 1951, part time	35.00
	Genito-Urinary Diseases	Nov. 13-17, 5 days, part time	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Two weeks Course in Urology	Sept. 25, full time	225.00
State University of Iowa, College of Medicine, Iowa City, Iowa At: University Hospitals	Postgraduate Conference in Urology for General Practitioners	Nov. 9, 1 day	5.00
American Urological Association, Rochester, Minn. At: Louisville, Ky.	Graduate Course in Urology	Oct. 1950, 5 days, full time	50.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Urology	Oct. 1, 8 months, full time	800.00
New York University Postgraduate Medical School 477 First Ave., New York 16	672 Urology	Sept. 25-June 16, full time	600.00
	6816-A Urology [35]	Oct. 9-Nov. 18, part time	100.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Rd., Portland 1, Oregon	Urology	Nov. 20-24, full time	50.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4	Urology	Oct.-May, full time	800.00
	VENEREAL DISEASES		
U. S. Public Health Service Medical Center, Hot Springs National Park, Ark.	Venereal Disease Postgraduate Course	Oct. 23-28, full time	None
Wayne University College of Medicine, 1512 St. Antoine St., Detroit At: Social Hygiene Clinic	Conference on Venereal Disease	Sept. 11-Dec. 2, Dec. 4-Mar. 10, part time	15.00
Institute for the Study of Venereal Disease, 237 Medical Laboratories, Philadelphia At: University of Pennsylvania	Essential Basic Training Course	Arranged, 6 months	800.00

1. For Illinois residents. $600.00 nonresidents.
2. Medical Society of the County of Kings, Long Island College of Medicine.
3. $240.00 nonmembers.
4. $250.00 for 500 hour course.
5. List of courses revised monthly by American Society of Anesthesiologists.
6. Registration fee $5.00.
7. Per quarter.
8. First year, $300.00; second year, $300.00; third year, $200.00; total, $1,000.00.
9. The stated 2 week period may be followed by additional studies at $100.00 a week. The course may also be taken by Philadelphia area physicians on six consecutive Thursdays—36 hours at $150.00.
10. For members. Nonmembers $35.00.
11. For members. Nonmembers $60.00.
12. Colorado residents $60.00.
13. Or $5.00 each program.
14. Nonmembers. $25.00 full year for members of the Medical Society of the State of Pennsylvania and A. M. A. $15.00 half-year for members M. S. S. P. and A. M. A.
15. 12 weeks, part time, $150.00; 16 weeks, part time, $200.00; 8 weeks, full time, $225.00.
16. Two weeks course beginning any Monday Sept. through May.
17. First year, $800.00. Second year, $400.00. Third year, $200.00.
18. Four weeks. Eight weeks $175.00. Twelve weeks $250.00.
19. Two students $200.00. Three students $150.00. Four or more students $125.00.
20. Candidates in training.
21. Advanced candidates in training only.
22. Per year. Course designed to cover 3 academic years.
23. $120.00 nonmembers.
24. Given when 15 requests are received.
25. For 3 months. $400.00 6 months. $600.00 9 months.
26. Plus $10.00 laboratory fee.
27. In conjunction with Iowa Pediatric Society.
28. Society members $5.00.
29. In conjunction with Michigan Pediatric and Infectious Disease Society.
30. Society members $12.50.
31. Waived if Candidate is sponsored by local chapter of National Foundation for Infantile Paralysis.
32. No fee for members of society.
33. In conjunction with Kentucky State Medical Society.
34. Sponsored by California Medical Association.
35. For specialists.
36. One month, $150.00; 3 months, $250.00; 6 months, $450.00; 9 months, $650.00; one year, $850.00.
37. One week, $60.00; 2 weeks, $110.00; one month, $200.00; 2 months, $300.00.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Right of Corporation to Practice Optometry.—This was an action to restrain the defendant corporation from engaging in the practice of optometry and to forfeit and revoke its charter. From a judgment granting an injunction the defendant appealed to the Supreme Court of Tennessee.

The evidence submitted to the trial court indicated that the defendant corporation is in the business of making lenses and fitting and selling eye glasses. It is a Tennessee corporation but is a part of a national chain store operation. Prescriptions written in local stores are filled in Chicago, and the glasses sold in Tennessee are made up in Chicago or the factory of the parent corporation and shipped to Nashville, Knoxville and Chattanooga for delivery to the purchaser. The defendant corporation employs, or has an arrangement with, a medical doctor in each of its three stores, by which arrangement each doctor occupies a small space or office inside the store building of the defendant. The doctors' names generally do not appear on the front of the store and are not listed in the telephone directory. These doctors, by arrangement with the defendant, are present during the time the store is open except for perhaps a short lunch period or possibly an afternoon off each week in some cases. The doctors devote their full time, while present at the store, to examining the eyes of customers who are directed to them by the employees of the corporation, and these doctors are guaranteed a fixed minimum weekly income by the corporation. The doctors charge a fixed examination fee of $2 per customer or patient, and, after they examine the patient's eyes and write the prescription, the patient is ushered back into the sales room of the store, where the manager or an employee of the store proceeds to sell the patient glasses by showing samples of frames. After agreement with the customer on the type of frame and glasses and the price, the order for the glasses is sent to Chicago and shipped from there back to the store for the customer. If in any week the doctor's examination fees from the patients so directed to him by corporate employees fail to amount to the agreed stipulated weekly income, a voucher is sent in and a check from the corporation for the difference is paid him. While in some instances the doctors have an ostensible agreement to pay some small amount as rent for the office space occupied, the record shows that they, in fact, do not pay rent. The determinative question, said the trial court, is whether the doctors are employees of the corporation. If they are, the trial court was of the opinion that the plan or device by which the defendant corporation operated in Tennessee constituted the practice of optometry and was a violation of the optometry act and of statutes regulating the practice of medicine. A careful examination of the entire record, said the trial court, including the advertisements and pictures which have been made exhibits, the depositions of witnesses and the testimony heard in open court, leads to the inescapable conclusion that the plan or device by which the defendant uses the services of the medical doctors in question amounts to an evasion of the law and is not a bona fide arrangement. On the basis of these facts, therefore, the trial court found that no narrow technical definition of the employer-employee relationship should be applied and that, in the sense necessary to make the doctors employees of the corporation, practicing their profession for it and in its name, the undisputed evidence forced the conclusion that the doctors were such employees and that, therefore, the corporation was practicing optometry.

Among other things, the optometry practice act provides: "And it shall be unlawful for any person to practice or offer to practice optometry as an employee of any person not engaged primarily in the practice of optometry as a licensee under this chapter, or of any firm or corporation not engaged primarily in the practice of optometry under the actual and personal supervision of partners or sole stockholders or lessees who possess valid unrevoked certificates of registration as optometrists in and for the state of Tennessee and who have actual legal residences within the state."

It is admitted, said the Supreme Court, that the defendant is not a corporation falling within this definition, so the question of the validity of that portion of the act was not before the court. The defendant's chief argument was that the defendant, as an "optician," and the employed physicians, as "oculists," are expressly exempted from the provisions of the optometry and medical practice acts.

It is not debatable, said the Supreme Court, that, if the physicians were duly registered and licensed, the three doctors acting independently had a right to examine eyes and write prescriptions for eye glasses. It is also clear that the defendant, as a merchant–optician, had a right to sell eye glasses in accord with the prescription. If the evidence supported a conclusion that the profession of the doctors was distinct from and independent of the business of defendant, the state would have no case, but we find that the evidence is to the contrary and shows that the activity of the doctors and the sales of the defendant were so merged and combined that, from the advertisement by which the customer was attracted to the defendant's store until the delivery of the glasses prescribed, the profession of the optometrist and the sale of merchandise by the optician was a single operation and enterprise.

In a Massachusetts case it was said that a customer who desires eye glasses is taken to the physician, who examines the eyes and prescribes eye glasses if needed. Other employees of the defendants assist the customer in selecting the shape and style of frames desired, grind and fit the lenses in accordance with the prescription of the physician and then adjust the finished eye glasses to the eyes of the customer. In the Massachusetts case it was concluded that the physician in such an instance was the servant of the defendant corporation, notwithstanding the fact that the defendants exercised no control over the mode, manner or result of the examination of the eyes of the customer and the doctor was left free to exercise his own will and judgment and use his own professional skill and methods in making such examination.

As found by the trial court, the Supreme Court said, the defendant, though a Tennessee corporation, is a branch of a large chain of optical goods stores operating throughout the United States and Canada. The chief executive authority of this chain is one B. D. Ritholz, who signed and swore to the answer in the present case, and the business operation, including the employment of licensed physicians, as it is presented by the present record, has been reviewed by the highest courts of many other states and by them determined to be unlawful. In these cases, with the single exception of an Iowa case, it has been held that the physicians under contract were servants and employees of the corporation or of Ritholz and that the business operation was therefore unlawful and to be enjoined. A prior Tennessee case is authority to the same effect, so far as the decision goes, the Supreme Court further pointed out. On the issues presented in the case, it was only necessary to decide that the employed doctor was an employee within the purview of the unemployment compensation act. This court held that he was such employee for the purpose of the act but that limited holding clearly eliminates the proposition urged by the defendant that the doctor was, or the present doctors are, independent contractors. In the great majority of cases it has been decided that an operation like that of the defendant is unlawful and may be enjoined. In the Iowa case the decision was based on the fact that the practice of optometry is not the practice of a profession. In an early Tennessee case it was similarly held, but in 1947 an amendment to the Tennessee statutes made optometry one of the "healing arts." We cannot escape the conclusion, said the Supreme Court, that it was the purpose of the legislature to make the practice of optometry a profession

and so to overrule the contrary holding of the Supreme Court in the prior case. The rule is uniform, the Supreme Court concluded, that a corporation cannot practice one of the learned professions; obviously this implies that the corporation cannot employ a licensed practitioner, since a corporation acts only through agents who practice for it.

On the basis of all of the evidence, therefore, the judgment of the trial court granting an injunction against the defendant corporation was accordingly affirmed.—*State ex rel. Loser, Attorney General, v. National Optical Stores Co., 225 S. W. (2d) 263 (Tenn., 1949).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various locations, June 19-21. *Part III.* Twenty-nine centers, June 6-29. Registration closes on May 6. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Various locations, July 21. *Oral.* Chicago, Oct. 8-11. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various locations, Sept. 14. *Oral.* Detroit, Oct. 20-22. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* San Francisco, June 21-23. The oral examinations in the subspecialties will be held at the same time and places. *Written.* Oct. 16. Asst. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Chicago, Oct. 1950. Applications no longer accepted. Sec., Dr. W. J. German, 789 Howard Ave., New Haven, Conn.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various Centers, January 1951. Final date for filing applications is July 1, 1950. Chicago, Oct. 2-6; West Coast, Jan. 1951. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, Jan. 25-26. Final date for filing applications is Aug. 15, 1950. Sec., Dr. Harold A. Sofield, 122 South Michigan Avenue, Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, October. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: St. Louis, Oct. 13-14. Sec., Dr. Robert R. Moore, 507 Euclid Ave., St. Louis 10.

AMERICAN BOARD OF PEDIATRCS: *Written.* San Francisco, June 30-July 2. *Oral.* Chicago, Oct. 13-15 and Boston, Dec. 1-3. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Oral and Written.* Boston, Aug. 26-27. Final date for filing applications is April 1. Sec., Dr. Robert L. Bennett, 30 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: *Oral.* May-June. Sec., Dr. Louis T. Byars, 4647 Pershing Avenue, St. Louis, Mo.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: San Francisco, June 23-24. Applications no longer accepted. Next examination, December 1950. Final date for filing applications is Sept. 1.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Chicago, week of June 18. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various centers, Oct. 25. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 10-14, 1951. Final date for filing applications is Sept. 1, 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 21.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 27-29. Sec., Dr. D. G. Gill, 519 Dexter Avenue, Montgomery.

ALASKA: * Juneau, Sept. 5. Special examinations given on application. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

CALIFORNIA: *Examination, Written.* San Francisco, June 19-22; Los Angeles, Aug. 21-24; Sacramento, Oct. 16-19. *Examination, Oral and Clinical for Foreign Medical School Graduates.* San Francisco, June 18; Los Angeles, Aug. 20; San Francisco, Nov. 12. *Reciprocity, Oral Examination.* San Francisco, June 17; Los Angeles, Aug. 19; San Francisco, Nov. 11. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

CONNECTICUT: * *Examination.* Hartford, July 11-12. Sec. to the Board, Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, July 11-12. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: *Examination.* Dover, July 11-13. *Reciprocity.* Dover, July 20. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA: * Jacksonville, June 25-27. Sec. Dr. Frank D. Gray, 12 N. Rosalind Avenue, Orlando.

GEORGIA: *Examination.* Atlanta and Augusta, June. *Endorsement.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

HAWAII: *Examination.* Honolulu. July 10-13. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

IDAHO: Boise, July 10. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

ILLINOIS: Chicago, June 13-15. Superintendent of Registration, Mr. Charles F. Kervin, Capitol Building, Springfield.

INDIANA: *Examination.* Indianapolis, June. Sec., Dr. Paul R. Tindall, 1138 K. of P. Bldg., Indianapolis.

IOWA: * *Examination.* Iowa City, June 12-14. Sec., Dr. M. A. Royal, 506 Fleming Building, Des Moines 19.

KENTUCKY: *Examination.* Louisville, June 14-16. Sec., Dr. Bruce Underwood, 620 S. 3rd Street, Louisville 2.

MAINE: *Examination and Reciprocity.* Augusta, July 11-12. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination.* Baltimore, June 20-23. Sec. Dr. Lewis P. Gundry, 1215 Cathedral Street, Baltimore 1. *Homeopathic.* Baltimore, June 20-21. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: *Examination.* Boston, July 11-14. Sec., Dr. George L. Schadt, Room 37, State House, Boston 33.

MICHIGAN: * *Examination.* Ann Arbor and Detroit, June 12-14. Sec., Dr. J. Earl McIntyre, 100 W. Allegan St., Lansing 8.

MINNESOTA: * *Written. Special Examination,* Minneapolis, June 13-15. *Regular Examination,* Minneapolis, June 20-22. Sec., Dr. J. F. Du Bois, 230 Lowry Medcal Arts Building, St. Paul 2.

MISSISSIPPI: Jackson, June 20-21. Asst. Sec., Dr. R. N. Whitfield, Jackson 113.

NEVADA: *Endorsement.* Carson City, August 7. Sec., Dr. George H. Ross, 112 Curry Street, Carson City.

NEW HAMPSHIRE: Concord, Sept. 13. Sec., Dr. John Samuel Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination.* Trenton, June 20-23 Sec., Dr. E. S. Hallinger, 28 West State Street, Trenton.

NEW MEXICO: * Santa Fe, Oct. 9-10. Sec., Dr. Charles J. McGoey, Coronado Building, Santa Fe.

NEW YORK: *Examination.* Albany, Buffalo, New York and Syracuse, June 27-30. Sec., Dr. Jacob L. Lochner, Jr., 23 S. Pearl St., Albany.

NORTH CAROLINA: *Written.* Raleigh, June 19-22. *Endorsement.* Raleigh, June 19. Sec., Dr. Ivan Procter, 226 Hillsboro Street, Raleigh.

NORTH DAKOTA: *Examination.* Grand Forks, July 5-7. *Reciprocity.* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination.* Columbus, June 14-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

OREGON: * Portland, July 6-8. Sec., Mr. Howard I. Bobbitt, 609 Failing Building, Portland.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July 11-14. Act. Sec., Mrs. Marguerite G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: *Examination.* Santurce, Sept. 5. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination.* Providence, July 6-7. Sec., Mr. Thomas B. Casey, 366 State Office Building, Providence.

SOUTH CAROLINA: *Examination.* Columbia, June 26-29. *Reciprocity.* First Monday of each month. Sec., Dr. N. B. Heyward, 1329 Blanding Street, Columbia.

SOUTH DAKOTA: * Sioux Falls, July 18-19. Sec., Dr. C. E. Sherwood, 300 First National Bank Bldg., Sioux Falls.

TEXAS: * *Examination.* Austin, June 19-21. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, June. Dir., Dr. Frank E. Lees, 324 State Capitol Building, Salt Lake City.

VERMONT: *Examination.* Burlington, June 13-15. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: *Examination.* Richmond, June 23-24. *Endorsement.* Richmond, June 22. Sec., Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WEST VIRGINIA: *Examination.* Charleston, July 10-12. Sec., Dr. N. H. Dyer, Capitol Bldg., Charleston .

WISCONSIN: * Milwaukee, July 11-13. Sec., Dr. C. A. Dawson, River Falls.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: *Examination.* Juneau, last week in August. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: *Examination.* Tucson, June 20. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

COLORADO: *Examination.* Denver, Sept. 13-14. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 3.

CONNECTICUT. *Examination.* New Haven, June 10. Exec. Asst., State Board of Healing Arts, M. G. Reynolds, 110 Whitney Ave., New Haven.

IOWA: *Examination.* Des Moines, July 11. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Ann Arbor, Oct. 13-14. Sec., Miss Eloise LeBeau, 101 North Walnut Street, Lansing 15.

NEBRASKA: *Examination.* Omaha, Oct. 3-4. Director, Mr. Oscar F. Humble, Room 1009, State Capitol Building, Lincoln 9.

OKLAHOMA: *Examination.* Oklahoma City, Sept. 15. Sec., Dr. Clinton Gallaher, 813 Braniff Building, Oklahoma City.

OREGON: Portland, June 17. Sec., Dr. C. D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: *Examination.* Providence, August 9. Chief, Division of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Building, Providence.

TEXAS: *Examination.* Austin, October. Sec., Brother Raphael Wilson, 306 Nalle Building, Austin.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

19:189-224 (Jan.) 1950

Common Rectal Conditions. W. J. Rosser.—p. 189.
Fatal Granulocytopenia Following Hydantoins—Mesantoin and Dilantin: Report of Case. H. Bernhardt.—p. 193.
*Hormone Therapy in Cataract. J. A. Keyton.—p. 198.
Physical Medicine in Hemiplegia. F. F. Schwartz.—p. 202.

19:225-256 (Feb.) 1950

Role of Medical College in Medical Care of the Veteran. R. R. Kracke.—p. 225.
A Full Stomach. W. F. Englebert.—p. 230.
Use of Electroencephalography in Clinical Medicine. S. C. Little.—p. 231.
Problems and Pleasures Connected with Psychiatric Section of General Hospital. F. A. Kay.—p. 237.
Privine Addiction. W. H. Blank.—p. 240.

Hormone Therapy in Cataract.—Keyton noticed that cataract was most prevalent in the fifth decade of life. Even though definite cataractous changes are not grossly apparent studies with the slit lamp and careful refraction will reveal changes which may have escaped detection in casual examination. Because of the changes taking place in endocrine organs during this time of life, the author administered male sex hormone preparations to patients with cataract. Before the patients were subjected to this therapy, it was established that they had passed the climacteric, for it would be futile to introduce into the system a therapeutic agent which already abounded there. Prostatic and pelvic examinations for malignant changes were made. The drug was not administered when prostatic nodules or polychromatic cells, sometimes found in the excretions of potentially malignant prostates, were present or when there were changes of a malignant nature in the cervix or other portions of the uterine anatomy. The author administers testosterone in 10 mg. doses daily for three months, sublingually, orally or parenterally, and then checks the lens with the lamp and checks refraction. If there is no improvement, the dose is increased to 15 or 20 mg. daily for another three months, when the same examinations are repeated. The author continues the treatment for nine months before abandoning it as hopeless. He admits that this treatment is not a panacea for all cataracts—many cataracts clear without treatment—but he believes that this drug has materially aided some patients.

American Journal of Medicine, New York

8:1-136 (Jan.) 1950

*Treatment of Primary Atypical Pneumonia with Aureomycin. H. S. Collins, E. B. Wells, T. M. Gocke and M. Finland.—p. 4.
*Aureomycin in Treatment of Influenza and Certain Other Acute Respiratory Infections With or Without Pneumonia. M. Finland, E. B. Wells, H. S. Collins and T. M. Gocke.—p. 21.
Aureomycin in Treatment of Anthrax. H. Gold.—p. 31.
Acute Serofibrinous Pericarditis of Undetermined Cause: Study of 27 Cases. R. L. Levy and M. C. Patterson.—p. 34.
Infrapulmonary Pleural Effusion Simulating Elevation of Diaphragm. E. Rothstein and F. B. Landis.—p. 46.
Prognosis in Arterial Hypertension: Comparison Between 251 Patients After Sympathectomy and Selected Series of 435 Non-Operated Patients. S. Hammarström and P. Bechgaard.—p. 53.
Study of Coagulation Mechanism of Pleural Blood in Hemopneumothorax. S. W. Cosgriff.—p. 57.

Aureomycin in Primary Atypical Pneumonia.—Collins and associates report on the effectiveness of aureomycin in various types of pneumonia and other severe infections of the respiratory tract. The first group studied included 32 patients with symptoms, physical signs, roentgenographic shadows in the lungs and the common laboratory observations that are generally considered to be characteristic of "viral" or primary atypical pneumonia. The observations in the 8 patients of group 2 were comparable in every respect to those in group 1 except that cold agglutinins could not be demonstrated in the serums of the former. Group 3 comprised 9 patients with acute pulmonary infections in whose serums cold agglutinins were demonstrated in significant titers, but the diagnosis of primary atypical pneumonia was discarded. These 9 patients form a heterogeneous group. All except 2 were given all the aureomycin orally. Treatment was usually begun with doses of 1 Gm. every four to six hours. Later, after the acute symptoms subsided, either the dose was reduced or the interval increased. The total dose varied between 3 and 44 Gm. and was given over a period ranging from one to thirteen days. Most of the patients received less than 15 Gm. within a period of less than four days. Aureomycin had a beneficial effect on the fever and symptoms in each of 40 patients with the characteristic signs of so-called viral or primary atypical pneumonia. In the 9 patients of the heterogenous group, in whom the pulmonary findings were accounted for on the basis of diseases other than primary atypical pneumonia, the response to aureomycin was variable.

Aureomycin in Influenza and Other Respiratory Infections.—Finland and his associates deal with a miscellaneous group of 41 cases of severe, acute respiratory infections with or without pneumonia. In 18 patients with proved influenza A infection, with bronchopulmonary involvement in most instances, oral administration of aureomycin was followed by prompt defervescence and alleviation of symptoms and the pulmonary lesions cleared rapidly. Pathogenic bacteria of possible significance were isolated from the throat or sputum in few patients in whom pulmonary lesions could not be demonstrated roentgenographically. Similar rapid improvement occurred during aureomycin therapy in 10 patients with severe, acute respiratory infections without pneumonia. Three of these 10 patients had nasopharyngitis and exudative tonsillitis associated with beta hemolytic streptococci, but no etiologic agent was identified in the others by bacteriologic or serologic methods. In 5 patients with classic signs and symptoms of lobar pneumonia, but in whom bacteriologic studies failed to reveal the etiologic agent, aureomycin therapy was likewise accompanied with a rapid termination of the acute disease. Each of the remaining 8 patients had pneumonia as a complication of other serious conditions, and no microbial agent could be identified as the cause of the pneumonia. The results of aureomycin therapy in these cases were equivocal. In view of the failure to demonstrate any definite action of aureomycin against experimental infections with influenza virus, the authors assume that possibly it exerts its effects through its action on secondary bacterial invaders.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

63:149-298 (Feb.) 1950

Differentiation of Cells and Tissues. S. P. Reimann.—p. 149.
Quantitative Determination of Gamma Radiation in Biological Research. R. F. Hill, G. J. Hine and L. D. Marinelli.—p. 160.
Radiobiological Additivity of Various Ionizing Radiations. R. E. Zirkle.—p. 170.
Biologic Effects of Long Continued Irradiation. E. Lorenz.—p. 176.
Circulation Times for Angiocardiography. G. C. Sutton, G. E. Wendel, H. E. Grant and E. G. Warnick.—p. 186.
Pulmonary Complications of Insulin Shock Therapy. R. J. Gross and F. H. Schaefer.—p. 191.
Roentgen Appearance of Thyroid Metastases in Bone. R. S. Sherman and M. Ivker.—p. 196.
Pneumoencephalographic Study of Normal Third and Fourth Cerebral Ventricles and Aqueduct of Sylvius. B. S. Epstein.—p. 204.
Roentgenologic Visualization of Semicircular Canals in Case of Paget's Disease. E. B. Newman and J. S. Rechtschaffen.—p. 210.
Infantile Cortical Hyperostosis: Review of Literature and Report of 5 Cases. M. S. Sherman and D. T. Hellyer.—p. 212.
Osteochondritis Dissecans of Shoulder. L. F. Miller and A. Hilkevitch.—p. 223.
Acute Gaseous Cholecystitis. E. C. Elsey and H. C. Hudson.—p. 238.
Cystadenoma of Pancreas: Report of 2 Cases Showing Calcification. R. S. Haukohl and A. Melamed.—p. 234.
Calcification in Retroperitoneal Neuroblastoma: Report of 3 Cases with Tuberculoid Reaction in 1 Case. P. A. Cline, G. N. Scatchard, E. G. Eschner and F. J. Gustina.—p. 246.
Roentgen Therapy Alone in Treatment of Advanced Cervico-Uterine Cancer, Including Extensive Postoperative Recurrences. F. Baclesse.—p. 252.

American Journal of Tropical Medicine, Baltimore

30:1-120 (Jan.) 1950. **Partial Index**

Immunological Relationship Between Seven Strains of Trypanosoma Cruzi and Its Application in Diagnosis of Chagas' Disease. T. S. Hauschka, M. B. Goodwin, J. Palmquist and E. Brown.—p. 1.
Indirect In Vitro Action of Antibiotics in Comparison with Activity of Accepted Amebacides. J. L. Bradin Jr. and E. L. Hansen.—p. 27.
Stain for Rapid Differentiation of Trophozoites of Intestinal Amoebae in Fresh Wet Preparations. C. A. Velat, P. P. Weinstein and G. F. Otto.—p. 43.
Survival of Cysts of Endamoeba Histolytica in Water at Temperatures Between 45° C. and 55° C. M. F. Jones and W. L. Newton.—p. 53.
In Vitro Method of Testing Amebicidal Activity of New Chemical Agent Using Balamuth Medium. B. Anastopoulos and C. L. Birch.—p. 59.
Camoquin Treatment of Malaria: Preliminary Report. M. T. Hoekenga.—p. 63.
Attempts to Transmit Human Balantidium Coli. M. D. Young.—p. 71.
*Relapsing Fever in Texas: Distribution of Laboratory Confirmed Cases and Arthropod Reservoirs. R. B. Eads, H. E. Henderson, T. McGregor and J. V. Irons.—p. 73.
Public Health Laboratory Diagnosis of Enteric Infections. M. M. Galton, A. V. Hardy and R. B. Mitchell.—p. 77.
Note on Treatment of Strongyloidiasis with Intravenous Gentian Violet. E. D. Palmer.—p. 91.
Enterobiasis Among Patients in Roanoke Veterans Adm. Hospital. C. H. Heilmann.—p. 93.
Field Studies of Tick Repellents. C. N. Smith and W. V. King.—p. 97.

Relapsing Fever in Texas.—Eads and his associates point out that the spirochete infection characterized by alternating febrile and afebrile periods commonly known as "relapsing fever" has been demonstrated to be endemic in Texas by a number of investigators. From June 1942 to May 1949 the diagnoses in 100 cases of relapsing fever were confirmed by personnel of the Bureau of Laboratories, Texas State Department of Health, by the demonstration in thick blood films of spirochetes morphologically indistinguishable from the causative agent of American relapsing fever. The cases occurred chiefly in the central part of the state, with scattered cases in all but the eastern part of Texas. During the same period of time, specimens of Ornithodoros turicata have been taken in 44 counties, representing all sections of the state except East Texas. In all but eight of the counties, pools of the ticks were shown to contain some harboring spirochetes.

American Review of Tuberculosis, New York

61:1-158 (Jan.) 1950

Chemical Studies on Thiosemicarbazones with Particular Reference to Antituberculous Activity. R. Behnisch, F. Mietzsch and H. Schmidt.—p. 1.
Investigations on Antituberculous Activity of Thiosemicarbazones in Vitro and in Vivo. G. Domagk.—p. 8.
Present Status of Chemotherapy of Tuberculosis with Conteben, Substance of Thiosemicarbazone Series: Review. A. Mertens and R. Bunge.—p. 20.
Implications of Changing Morbidity and Mortality Rates from Tuberculosis. H. R. Edwards and G. J. Drolet.—p. 39.
Prevalence of Clinically Significant Pulmonary Tuberculosis Among Inmates of New York State Penal Institutions. J. Katz and R. E. Plunkett.—p. 51.
Postoperative Management of Thoracoplasty Patients. J. Alexander.—p. 57.
*Value of Cytological Diagnosis of Pulmonary Malignancy. L. H. Clerf and P. A. Herbut.—p. 60.
Properties of Culture of BCG Grown in Liquid Media Containing Tween 80 and Filtrate of Heated Serum. R. J. Dubos, F. Fenner and C. H. Pierce.—p. 66.
Experimental Tuberculosis in the Dog: Comparison of Lesions in Puppies and Mature Dogs. F. D. Gunn and J. J. Sheehy.—p. 77.
Studies on Contagiousness of Coccidioidomycosis: II. Fate of Spherules in Sputum Exposed out of Doors. S. R. Rosenthal and F. H. Elmore.—p. 95.
Id.: III. Infection in Guinea Pigs by Contact with Diseased Animals. S. R. Rosenthal and F. H. Elmore.—p. 106.
Tuberculosis of Stomach and the Stomach in Tuberculosis: Review with Particular Reference to Gross Pathology and Gastroscopic Diagnosis. E. D. Palmer.—p. 116.

Cytologic Diagnosis of Pulmonary Malignancy.—In applying the Papanicolaou technic to sputum Clerf and Herbut found that the number of positive diagnoses was insufficient, and since virtually all cases of suspected carcinoma were examined bronchoscopically, they utilize bronchoscopically removed secretions. The tracheal secretions usually were discarded because they represented greater dilution, and those obtained from the suspected bronchial subdivision were utilized. Because of their scantiness a special bronchoscopic collector was devised. Three to five cubic centimeters of isotonic sodium chloride solution are instilled bronchoscopically into the suspected subdivision. After several minutes the washings are aspirated into the collector. Whenever possible, the patient is postured so that the solution is instilled into a dependent portion of the lung. Statistical data as of February 1949 include a total of 285 cases of bronchogenic carcinoma. Of this group 253 (88.8 per cent) were diagnosed by cytologic examination of bronchoscopically removed secretions. In 99 cases (34.7 per cent) positive bronchoscopic biopsies were obtained, and in 78 there was bronchoscopic evidence of deformity, fixation, rigidity or stenosis suggesting new growth. If this latter group is included with the cases of positive bronchoscopic biopsy, the total number of bronchoscopic diagnoses would be 177 (62.1 per cent). The authors stress that the cytologic examination of bronchoscopically removed secretions offers a means of recognizing early and peripherally situated bronchogenic carcinoma which cannot be visualized bronchoscopically or diagnosed accurately by any means short actual biopsy of the tumor itself at exploratory thoracotomy. With earlier discovery of suspicious pulmonary lesions by mass roentgenographic surveys and by cytologic study of bronchial secretions, the results of surgical treatment of bronchogenic carcinoma should improve considerably.

Annals of Surgery, Philadelphia

131:1-128 (Jan.) 1950

*Use of Blood and Plasma in Correction of Protein Deficiencies in Surgical Patients. J. G. Allen, W. Egner, M. B. Brandt and D. B. Phemister.—p. 1.
Streptococcal Enzymatic Debridement. W. S. Tillett, S. Sherry, L. R. Christensen and others.—p. 12.
Postural Changes in Circulation of Surgical Patients as Studied by New Method for Recording Arterial Blood Pressure and Pressure Pulse. L. H. Peterson, K. F. Eather and R. D. Dripps.—p. 23.
Effects of Hemoconcentration of Ulcer Diathesis with Special Reference to Employment of Gastrectomy in Surgical Treatment of Polycythemia Vera. I. D. Baronofsky, D. State,, S. R. Friesen and others.—p. 31.
Splanchnic Nerve Section for Pancreatic Pain: Second Report. G. de Takats, L. E. Walter and J. Lasner.—p. 44.
Bilateral Splanchnicectomy and Lumbodorsal Sympathectomy for Chronic Relapsing Pancreatitis. J. E. Connolly and V. Richards.—p. 58.
Reconstructive Surgery Following Radical Operation for Malignant Tumors of Head and Neck. H. Conway.—p. 64.
Burns from Electricity. G. K. Lewis.—p. 80.
Ligation of Splenic Artery, Operation of Choice in Selected Cases of Portal Hypertension and Banti's Syndrome. A. W. Blain and A. Blain III.—p. 92.
Blood Supply of Rectosigmoid and Rectum. M. W. Breenberg.—p. 100.
Neurologic Deficit Associated with Lipomas of Cauda Equina. R. C. Bassett.—p. 109.
Extrinsic Duodenal Obstruction in Newborn. A. E. Sachs.—p. 117.
Meningocele Spinalis Traumatica Spuria: Case Report of Unusual Complication of Spinal Injury with Operative Cure. A. L. Shapiro and L. Faske.—p. 124.

Blood and Plasma in Correction of Protein Deficiencies.—Allen and his co-workers studied the nitrogen metabolism in depleted patients to whom protein was administered in the form of plasma or blood. Intravenously administered plasma appeared to be utilized more efficiently than intravenously administered amigen® (protein hydrolysate) both with respect to nitrogen balance and elevation of the plasma proteins. No latent nitrogen loss was detected. Evidence suggests that intracellular hemoglobin in whole blood transfusions may be utilized for body protein in the depleted patient. The rises in hemoglobin and hematocrit readings were slow, and the values obtained were considerably less than should be expected had all the hemoglobin contained in the transfusions been retained in the circulation. These data suggest that the body's utilization of hemoglobin for tissue protein may explain why the response to whole blood transfusions is often slow. Untoward reactions to either blood or plasma transfusions were not sufficiently frequent or severe to discourage such therapy as a means of correcting hypoproteinemic states. The problem of "homologous serum jaundice" can be minimized by rejection of donors with a history of jaundice. The authors believe that this problem is not sufficient reason for rejection of plasma transfusions for nutritive purposes. Circulatory overload may occur, but the danger of moderate overtransfusion is probably much less than the hazards of undertransfusion. The much more efficient utilization of blood and plasma as nitrogenous nutrients, compared with protein hydrolysates, justifies the cost differential.

Arch. Indust. Hygiene and Occupat. Medicine, Chicago

1:133-270 (Feb.) 1950

Impairment of Pulmonary Function in Anthracosilicosis. H. L. Motley, B. Gordon, L. P. Lang and P. A. Theodos.—p. 133.
Health Service for Hospital Personnel. J. G. Norby.—p. 160.
Cataract from Infra-Red Rays (Glass Workers' Cataract): Preliminary Study on Exposures. K. L. Dunn.—p. 166.
Extending Potential of Industrial Health. W. H. Seymour.—p. 181.
Causes, Constituents and Physical Effects of Smog Involved in Specific Dramatic Episodes. H. H. Schrenk.—p. 189.
Chronic Pulmonary Beryllosis in Workers Using Fluorescent Powders Containing Beryllium. H. E. MacMahon and H. G. Olken.—p. 195.
Distribution and Excretion of Intravenously Administered Methyl Chloride. F. Sperling, F. J. Macri and W. F. von Oettingen.—p. 215.
Vapor Toxicity of 1,1,1-Trichloroethane (Methylchloroform) Determined by Experiments on Laboratory Animals. E. M. Adams, H. C. Spencer, V. K. Rowe and D. D. Irish.—p. 225.
Effects of Prolonged Inhalation of Oil Fogs on Experimental Animals. C. C. Lushbaugh, J. W. Green Jr. and C. E. Redemann.—p. 237.
Toxic Gases and Aviation: Gaseous Concentrations and Altitude. C. R. Spealman.—p. 248.

Archives of Internal Medicine, Chicago

85:199-364 (Feb.) 1950

*Observations on Physiologic Effects of Cortisone and ACTH in Man. R. G. Sprague, M. H. Power, H. L. Mason and others.—p. 199.
*Bacterial Meningitis: Results of Treatment in 17 Cases with New Sulfonamide (Gantrisin®). P. S. Rhoads, F. A. Svec and J. H. Rohr.—p. 259.
Multiple Symmetric Bilateral Cranial Nerve Palsies in Patients with Unregulated Diabetes Mellitus: Report of 3 Cases. D. L. Larson and J. H. Auchincloss.—p. 265.
Relation Between Blood Lipids and Excretion of Choline in Diabetic Patients. O. V. Širek.—p. 272.
Chloramphenicol in Treatment of Eberthella Typhosa G Osteomyelitis: Report of Case. C. W. Morse and F. M. Geiser.—p. 280.
Chemical Structure of Substances Effective in Treatment of Parkinsonism. D. S. Gair and J. Ducey.—p. 284.
Kidney in Relation to Protein Catabolism: Effect of Abstention from Food and Fluid After Sudden Loss of Renal Tissue. E. C. Persike.—p. 299.
Syphilis: Review of Recent Literature. H. Beerman, L. Nicholas, M. S. Buerk and W. T. Ford.—p. 305.

Physiologic Effects of Cortisone and ACTH.—Sprague and his associates of the Mayo Clinic report on clinical and metabolic studies on 33 patients who received cortisone or ACTH or both for varying periods. One of the patients also received compound F. Cortisone and ACTH had many effects in common. They are powerful hormonal agents. Many of the manifestations of Cushing's syndrome were induced by protracted administration of cortisone; these included rounding of the face, hirsutism, acne, keratosis pilaris, muscular weakness, edema, amenorrhea, cutaneous striae, mental depression, impairment of carbohydrate tolerance, negative nitrogen balance, increased excretion of corticosteroids in the urine and hypochloremic, hypopotassemic alkalosis. Metabolic studies disclosed that cortisone and ACTH increased excretion of creatine and uric acid in the urine and gave rise to a negative balance for potassium in some cases. Their effects on balances of sodium and chloride were variable, the usual pattern being retention of salt early in the period of administration, followed by increased excretion when administration was prolonged. In some cases there were slight increases in urinary excretion of calcium and phosphorus. Compound F did not have pronounced metabolic effects. Studies of the urinary steroids revealed that the adrenal cortex, when stimulated by ACTH secretes 17-hydroxy-corticosterone (compound F) rather than cortisone. A small percentage of administered cortisone is excreted in the urine as 17-ketosteroids and corticosteroids. Small amounts of unchanged cortisone were present in the corticosteroid fraction. Cortisone is capable of depressing the function of the adrenal cortices in man. The authors suggest that such terms as "side effects" or "toxic reactions" should not be applied to physiologic alterations induced by cortisone and ACTH, for they do not indicate the biologic significance of these important substances.

Gantrisin® in Bacterial Meningitis.—Rhoads and his co-workers had reported in a previous communication clinical experiences with a new sulfonamide, gantrisin® (3,4-dimethyl-5-sulfanilamido-isoxazole). It had been used as the sole bacteriostatic agent in 52 patients with various infections and in combination with antibiotics in 38 others. The results were satisfactory, but since many of the conditions for which it had been prescribed are self limiting, the authors felt that special attention should be given to the results obtained in bacterial meningitis—a disease which in a large percentage of the cases does not clear up spontaneously. Ten patients with meningococcic meningitis were treated with gantrisin® as the sole bacteriostatic agent. All recovered without complications due to the disease or the treatment. Two patients with meningococcic meningitis were given combined treatment with gantrisin® and penicillin. Both recovered without complications. Three patients with pneumococcic meningitis were treated with gantrisin® and penicillin. One of these, shown by autopsy to have had pneumococcic endocarditis, died. The others recovered. Both patients with hemophilus influenzae meningitis who were treated with gantrisin® and streptomycin, made an uneventful recovery. Gantrisin® was administered orally, intramuscularly and intravenously with no untoward effects. Several patients who had albuminuria and miscroscopic hematuria at the start of treatment with gantrisin® were successfully treated with the drug in full doses without adjuvant alkali therapy.

Archives of Surgery, Chicago

60:203-420 (Feb.) 1950

*Study of Vagotomy. J. M. Beal and P. Dineen.—p. 203.
Failure of Vagotomy to Prevent Formation of Mann-Williamson Ulcers in Dogs. D. M. Enerson, E. R. Woodward, E. B. Tovee and others.—p. 223.
Treatment of Chronic Pancreatitis by Unilateral Splanchnicectomy. P. Mallet-Guy and M. Jaubert de Beaujeu.—P. 233.
Retrograde Jejunogastric Intussusception: Report of Case. E. H. Lawson and D. L. Whitener.—p. 242.
Malignant Tumors of Parathyroid Glands: Review of Literature with Report of Case. H. U. Stephenson Jr.—p. 247.
Surgical Management of Gastric Ulcer High On Lesser Curvature. J. W. Hinton and S. A. Localio.—p. 267.
Contralateral Recurrent Herniated Disks. H. Wycis.—p. 274.
Torn Discoid Meniscus: Association of Discoid Meniscus with Congenitally High Position of Fibular Head. M. Burman and E. Neustadt.—p. 279.
Osteoid-Osteoma. F. A. Chandler and H. I. Kaell.—p. 294.
Symptomatology and Diagnosis of Gastric Cancer. J. S. LaDue, P. J. Murison, G. McNeer and G. T. Pack.—p. 305.
Modification of Cooper's Ligament Herniorrhaphy Using Halsted's Fascial Flap. T. G. Orr Jr.—p. 336.
Mesenteric Vascular Occlusion. E. L. Strohl and J. Lasner.—p. 339.
Retroperitoneal Fatty Tumors: Report of Case and Collective Review of Literature from 1937 to 1947. A. A. Farbman.—p. 343.
Tissue Reactions to Waxes Derived from Spool Cotton: Possible Etiologic Relation to Suture Granulomas and Suture Extrusion. N. Rosenberg, S. E. Moolten and L. Vroman.—p. 363.
Clamp for Construction of Vascular Anastomoses. H. W. Southwick.—p. 372.
Full Thickness Pedicle Flap Graft from Amputated Arm for Large Skin Defects Following Interscapulothoracic Amputation. K. A. Merendino.—p. 376.
Review of Urologic Surgery. A. J. Scholl, F. Hinman, E. Crowley and others.—p. 379.

Vagotomy.—From May 1946 to January 1949 Beal and Dineen performed vagotomy on 58 men and 9 women with peptic ulcers. Forty-four of the patients had duodenal ulcers, 23 had marginal ulcers, 1 had a gastric ulcer and 1 an esophageal ulcer. A transthoracic approach was made in 20 patients and subdiaphragmatic in 49. Gastroenterostomy was combined with vagotomy in 12 and gastric resection in 7. Insulin gastric analyses after operation demonstrated a complete vagotomy in 44 patients. The patients were followed for one to twenty-eight months; 49 were followed for more than six months. Fourteen of the 20 patients on whom transthoracic vagotomy was performed were free of pain and were considered to have satisfactory results, treatment in 6 failed. Transabdominal vagotomy resulted satisfactorily in 42 and failed in 6 patients. Hemorrhage did not recur in the 14 instances in which operation was performed on patients who had a recent episode of gastrointestinal bleeding. Two patients died, one on the ninth postoperative day from pulmonary embolism and the other from a cerebral vascular accident three months after the operation. Undesirable side effects occurred in 33 patients; 28 had signs and symptoms of gastric retention for four to six months, and 17 had transient diarrhea for three to four months. To alleviate these disturbances, carbachol was administered to 6 patients and urecholine® (urethane derivative of beta-methylcholine chloride) to 2. These drugs were equally effective in relieving symptoms due to disturbed gastric motility and to diarrhea. When vagotomy is complete, the cephalic

phase of gastric secretion is abolished and the excessive night secretion of high acid content is eliminated. Complete vagotomy may be anticipated in 80 to 90 per cent of cases according to clinical and anatomic studies. Objection to the operation is based on uncertainty of complete division of all fibers and on the undesirable side effects in a high percentage of cases. The permanency of benefits from vagus section is not yet established. The results obtained with vagotomy in the treatment of duodenal ulcer are inferior to those from gastric resection. Simple vagotomy is contraindicated in cases of obstructing duodenal ulcer and of gastric ulcer. Vagotomy seems best suited for marginal ulcer.

Bulletin New York Academy of Medicine, New York

26:1-72 (Jan.) 1950

Advances in Diagnosis of Virus Infections. F. L. Horsfall Jr.—p. 3.
Unipolar Electrocardiography, Including Intracardiac Leads, in Diagnosis of Myocardial Disease. C. E. Kossmann.—p. 20.
Renal Function Tests in Diagnosis of Glomerular and Tubular Disease. D. P. Earle Jr.—p. 47.
Therapeutic Results with Aureomycin and Chloramphenicol. T. E. Woodward, R. T. Parker and H. E. Hall.—p. 66.

26:75-140 (Feb.) 1950

Adrenal Cortex and Hypertension. G. A. Perera.—p. 75.
Cardiac Catheterization in Diagnosis of Congenital Heart Disease. L. Dexter.—p. 93.
Present Methods in Diagnosis of Hemolytic Disorders. C. J. Watson.—p. 103.
Diagnostic Testing in Psychiatric Practice. D. Rapaport.—p. 115.

Canadian Medical Association Journal, Montreal

62:109-218 (Feb.) 1950

Recent Advances in Obstetrics of Interest to General Practitioner. H. B. VanWyck.—p. 109.
Artificial Radioactivity. J. W. T. Spinks.—p. 120.
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Psychogenic Factor in Asthma. H. K. Detweiler.—p. 128.
Provisions for Prevention and Care of Tuberculosis in Canada. R. G. Ferguson.—p. 131.
*Fluorosis with Report of Advanced Case. L. G. Kilborn, T. S. Outerbridge and Hai-Peng Lei.—p. 135.
Psychosomatic Disturbances and Their Bearing on Worker's Efficiency. H. G. Ross.—p. 141.
Use of Combined Antigens in Immunization of Infants. D. S. Fleming and L. Greenberg.—p. 146.
Oral Cancer in the Female. G. Pinsonneault and G. Gill.—p. 148.
Nasopharyngeal Radium Applicator in Treatment and Prevention of Deafness. E. J. Smith and E. E. Scharfe.—p. 150.
Carcinoma of Uterus. D. O. Ferris.—p. 156.
Intensive Vitamin Treatment in Some Neuritides and Some Psychoses. N. Viner.—p. 162.
Contact Allergy to Plastic Artificial Eyes. J. Macivor.—p. 164.
Hearing Defects in Children. L. H. Leeson.—p. 167.
Pneumokonioses: Deyelopments, Doubts, Difficulties. E. R. A. Merewether.—p. 169.
Infectious Mononucleosis. B. F. Paige.—p. 173.
Management and Treatment of Pelvic Endometriosis. P. J. Kearns.—p. 176.
Adult Gaucher's Disease. A. H. Squires, O. Kofman and J. N. Cunningham.—p. 178.
Congenital Cystic Disease of Lung. R. M. Levine.—p. 181.

Fluorosis.—Kilborn and his co-workers warn that the use of sodium fluoride to decrease the incidence of dental caries should not cause one to lose sight of the dangers from large doses of the substance. When Kilborn and others traveled in Southwest China for anthropologic studies among the Miao and other aboriginal races, they were puzzled by the high incidence of a peculiar type of "arthritis" and joint ankylosis that seemed to afflict a majority of the adult inhabitants of a number of villages. In many of the older persons the disease had advanced to such an extent that they appeared to be "set" in semisitting positions. Persons born and brought up in these villages were affected by the time they were 17 or 18 years of age. Roholm's monograph on fluorine intoxication brought to light the similarity in appearance between the photographs of the Danish cryolite workers and the crippled Miao peasants. Roholm had demonstrated that the inhalation and absorption of cryolite dust, over half of which is fluorine, caused extensive bone and joint changes. The authors reproduce photographs of the bones of a man who had a severe form of fluorosis and who had lived in the region in China where the water had a fluorine content of around six parts per million. The authors feel that it is possible that endemic centers exist on the North American Continent but that the true cause of the disabling spondylitis or other joint affections may not have been recognized and a diagnosis of chronic arthritis may have been made.

Cancer Research, Chicago

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Effects of Growth Inhibitor and Other Factors on Tissue Cathepsins of Tumor-Bearing Rats. R. N. Feinstein.—p. 93.
Effect of Nitrogen Mustard on Granulocytic Cells as Observed by Marrow Culture Technic. E. E. Osgood and I. T. Chu.—p. 98.
Liver Catalase of Tumor-Bearing and Leprous Rats. A. L. Dounce and R. P. Shanewise.—p. 103.
Transplanted Mouse Leukemia as Test Object for Evaluation of Chemotherapeutic Agents. N. C. Geisse and A. Kirschbaum.—p. 108.

Connecticut State Medical Journal, Hartford

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Audit of Treatment of Breast Cancer at the Hartford Hospital, 1932-1939. D. B. Wells.—p. 3.
Mesenteric Vascular Occlusion—A Diagnostic Surgical Problem. J. O'L. Nolan and L. A. St. John.—p. 16.
Primary Atypical Pneumonia in Children: Review of 34 Cases. M. F. Randolph.—p. 19.
Tumor of Urachus. W. R. Van Tassel.—p. 27.
Survey of Intern Distribution: Views on Intern Placement Plan and Related House Staff Problems in Connecticut Area. R. R. Nesbit.—p. 30.

Diseases of Nervous System, Chicago

11:1-32 (Jan.) 1950

*Lumbar Intervertebral Disc Rupture. F. K. Bradford.—p. 3.
Some Immature Reactions in College Students. P. L. White.—p. 20.
Insensitivity to Pain as Complication of Phenurone Therapy in Epilepsy. F. M. Forster and K. Frankel.—p. 24.
Apparatus Supplying Auditory Stimulus for Induction of Hypnosis. J. M. Schneck.—p. 26.
Effects of Oral Tolserol on Some Aspects of Electroshock Convulsions. F. D. Greer.—p. 27.

Lumbar Intervertebral Disk Rupture.—According to Bradford, herniation of the nucleus pulposus occurs between the fourth and fifth lumbar vertebrae or at the lumbosacral junction in over 95 per cent of all herniations in the lower part of the spine. The fifth lumbar nerve is usually affected at the fourth disk and the first sacral nerve at the lumbosacral disk. The diagnosis of a ruptured lumbar disk is predominantly a clinical one. Pain is usually the incapacitating symptom. A history of injury during lifting or twisting is of significant value. Disk rupture is rare when sciatic pain has occurred with no episodes of mechanical back disability either preceding or accompanying the sciatic pain. The greater the severity and duration of sciatic pain, the greater is the likelihood of disk rupture. Accentuation of sciatic pain by coughing, straining or sneezing points to intraspinal pathology, most usually a ruptured disk. Well localized numbness or paresthesia of the leg is often as reliable an index of a root lesion as is objective sensory change. Significant reduction of lumbar lordosis with or without tilting of the pelvis, in the presence of a severe sciatic pain, is valuable evidence of rupture. A positive reaction to a Lasegue test, while almost uniformly present in disk rupture, does not specifically indicate this condition. A positive jugular compression (Naffziger) reaction is strong evidence of an intraspinal lesion. Reproduction of radiating pain by firm paravertebral pressure is definitely suggestive of disk rupture. Root changes—motor, sensory or reflex—are of great significance when of a degree to be completely objective. Roentgen examination is of more importance in excluding other conditions than in substantiating the clinical diagnosis of a ruptured intervertebral disk. Spinal puncture is often necessary in the presence of severe symptoms of short duration. A history of syphilis, severe paralysis or other findings which are not entirely the rule necessitate a lumbar puncture in cases of longer duration. Myelography is necessary only when the symptoms are sufficiently serious to require surgical intervention. When no surgical emergency exists, conservative treatment should be instituted for several months. Operation on a ruptured intervertebral disk is emergent only when pain is unbearable or when a serious defect in nerve function exists. Radicular involvement

should be treated by operation on the disk, which should not be uniformly combined with spinal fusion. Fusion may be done in patients with disabling back symptoms after surgical treatment of the disk.

Georgia Medical Association Journal, Atlanta

39:1-50 (Jan.) 1950

Congenital Intrinsic Duodenal Obstruction: Report of 9 Cases. L. Grove and E. Rasmussen.—p. 1.
Burns. J. D. Martin Jr., R. Caudle and J. M. B. Bloodworth Jr.—p. 10.
Goiter: Hashimoto Type. T. C. Davison and A. H. Letton.—p. 19.
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Right Thoracic Approach in Combination with Laparotomy for Resection of Cancer of the Esophagus at the Level of Arch of Aorta. R. King. —p. 30.
Public Relations: Good and Bad. E. Calloway.—p. 33.

Illinois Medical Journal, Chicago

97:53-112 (Feb.) 1950

Immunization in Early Childhood. L. W. Sauer.—p. 73.
Medicolegal Problems of Clinical Laboratory. S. A. Levinson.—p. 76.
Bladder in Pregnancy. H. E. Smith and F. J. Walsh.—p. 82.
Persistent Patent Ductus Arteriosus. R. B. Bettman.—p. 87.
Cystitis in Female: Interstitial Cystitis. C. O. Ritch.—p. 92.
Cutaneous Biopsy: Safe and Valuable Diagnostic Procedure. S. J. Zakon and I. Eirinberg.—p. 94.
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Chronic Severe Ventricular Aneurysm. R. T. Farley and G. S. Schwerin. —p. 98.
Dermatomyositis. B. Shulman and D. Cohen.—p. 102.

Journal of Clin. Endocrinology, Springfield, Ill.

10:1-120 (Jan.) 1950

*Piperidylmethyl-Benzodioxane (933-F), Hypertension, and Pheochromocytoma. E. Calkins, G. W. Dana, J. C. Seed and J. E. Howard.—p. 1.
Production of Endogenous "Salt-Active" Corticoids as Reflected in Concentrations of Sodium and Chloride of Thermal Sweat. J. W. Conn and L. H. Louis.—p. 12.
Role of Adrenal Cortex in Somatosexual Disturbance in Infants and Children: Clinico-Pathologic Analysis. M. M. Melicow and G. F. Cahill.—p. 24.
Color Test for Dehydroisoandrosterone and Closely Related Steroids, of Use in Diagnosis of Adrenocortical Tumors. W. M. Allen, S. J. Hayward and A. Pinto.—p. 54.
Simple Method for Analyzing Complicated Absorption Curves, of Use in Colorimetric Determination of Urinary Steroids. W. M. Allen.—p. 71.
Comparison of Chemical and Biologic Assay of Cortin-Like Substances in Normal Male Urine. A. N. Wick, E. Pecka Jr. and R. Medz.—p. 84.
Pregnanediol Excretion in Normal Women. J. Rogers and S. H. Sturgis. —p. 89.
Improved Procedure for Quantitative Estimation of Urinary Pregnanediol. R. E. Hoyt and M. G. Levine.—p. 101.
Gonads in Laurence-Moon-Biedl Syndrome: Three Case Reports with One Partial Autopsy. C. Francke.—p. 108.

Piperidylmethyl-Benzodioxane and Pheochromocytoma.—Calkins and co-workers administered piperidylmethyl-benzodioxane (933-F) in 20 mg. test doses to 120 patients with hypertension. The drug competes with epinephrine and allied compounds as an epinephrine-specific receptor and discloses, with the dose employed, that component of hypertension which is directly due to such compounds. Eight patients with apparent organic hypertension did not respond to 933-F with a fall in blood pressure. The remaining 112 patients with hypertension were suspected to have a pheochromocytoma. In only two of these patients was administration of 933-F followed by a prompt fall in blood pressure of sufficient extent and duration to be judged as a positive result. One of the two patients with a clearly positive response to 933-F, a man aged 37, was subsequently proved to have a pheochromocytoma—the tumor was excised with complete relief of his symptoms. Extracts of the tumor contained large amounts of nor-epinephrine, and the pressor effect of these extracts in dogs was inhibited by 933-F. The second patient, a girl aged 7, who gave a positive response to 933-F had a large-cell neuroblastoma. Her hypertension was relieved after removal of the tumor, but recurred with metastases. There were significant differences between the blood pressure responses of these two patients. In the first patient treatment with 933-F reduced the blood pressure to normal. It was further reduced when the pedicle of the tumor was clamped and later was stabilized at a normal level. The hypertension was due to the direct effects of the pressor substance on the arteriolar bed and the myocardium. In the second patient the test dose of 933-F pre-operatively lowered the blood pressure from 210 systolic and 150 diastolic to 160 systolic and 110 diastolic but did not reduce it to normal. The pressure remained relatively stable during the operation, even when the pedicle of the tumor was clamped. The pressure did not become normal until three weeks after the operation. Results of the benzodioxane test may be equivocal or negative in certain patients with proved pheochromocytoma. The blood pressure may remain stable throughout the operation and return to normal only gradually. The pheochromocytoma may produce hypertension in these patients indirectly by stimulating the pituitary and the adrenals, rather than directly by the effect of their secretions on the arteriolar bed or cardiac musculature.

Journal of Clinical Investigation, Cincinnati

29:1-140 (Jan.) 1950. **Partial Index**

Significance of Serum Cholesterol in Thyroid Disease. J. P. Peters and E. B. Man.—p. 1.
Observations on Treatment of Human Gastric and Colonic Mucus with Lysozyme. G. B. J. Glass, B. L. Pugh, W. J. Grace and S. Wolf. —p. 12.
Notes on Case of Congenital Heart Disease with Cyanotic Episodes. W. F. Hamilton, J. A. Winslow and W. F. Hamilton Jr.—p. 20.
Effects of Intravenously Administered Aminophylline on Cerebral Circulation and Metabolism in Man. R. L. Wechsler, L. M. Kleiss and S. S. Kety.—p. 28.
Colorimetric Determination of Lipase and Esterase in Human Serum. A. M. Seligman and M. M. Nachlas.—p. 31.
Study of Effect of Anion Exchange Resin on Gastric and Duodenal Secretions and Gastric Emptying. C. W. Wirts and M. E. Rehfuss. —p. 37.
Choline-Containing Phospholipids of Serum. M. J. Albrink.—p. 46.
Experimental Malaria in Man. A. Henschel, H. L. Taylor and A. Keys. —p. 52.
Considerations of Renal, Hepatic and Extremital Arteriovenous Differences in Concentration of Radiomercury of Mercurial Diuretic. P. Milnor, G. Burch, T. Ray and others.—p. 72.
Chloramphenicol and Other Antibiotics in Treatment of Typhoid Fever and Typhoid Carriers. T. E. Woodward, J. E. Smadel and H. L. Ley Jr.—p. 87.
*Effects of Suggestion and Conditioning on Action of Chemical Agents in Human Subjects—Pharmacology of Placebos. S. Wolf.—p. 100.
Excretion of Hippuric Acid in Subjects with Free Anxiety. H. Persky, R. R. Grinker and I. A. Mirsky.—p. 110.
Experimental Evidence on Nature of Cutaneous Hyperalgesia. J. D. Hardy, H. G. Wolff and H. Goodell.—p. 115.

Pharmacology of Placebos.—Wolf describes some "drug effects" which are not attributable to the chemical properties of the agents. Initial observations were made on a man with a large gastric fistula, in whom it was possible to observe directly the gastric mucous membrane, correlating changes in color and turgidity with simultaneous measurements of secretion and motor activity. Studies were also made on four other human subjects. Among the factors which appeared to be of importance in the experiments are: (1) the state of the end organ at the time of administration; (2) the setting in which the agent was administered, the presence of the experimenter and the effects of suggestion and (3) previously established habits of reaction. The frequency of "placebo effects" and their magnitude probably vary from person to person and from time to time. More than 100 experiments have been performed with pharmacologic agents on the subject used in this study, and, although it is not possible to state definitely how frequently significant modification of the pharmacologic effect occurred because of situational factors, minor evidences of such could be detected in well over 50 per cent of the observations. "Placebo effects" which modify the pharmacologic action of drugs or endow inert agents with potency may be associated with measurable changes at the end organs. These effects are at times more potent than the pharmacologic action attributed to the agent. The difficulty of evaluating new therapeutic agents stems not only from inadequately curbed enthusiasm of the investigator but also from the actual physiologic effects of their "placebo" action.

Journal of Immunology, Baltimore

64:1-38 (Jan.) 1950

Quantitative Study of Arthus Phenomenon Induced Passively in Guinea Pig. B. Benacerraf and E. A. Kabat.—p. 1.
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Production of Specific Pneumococcus Carbohydrate-Splitting Enzymes in Media to Which Specific Substrate Was Not Added. M. Shaw and G. M. Sickles.—p. 27.
Recurrence of Influenza A Prime in a Boarding School After Two Years. M. M. Sigel, A. W. Kitts, A. B. Light and W. Henle. —p. 33.

Journal of Investigative Dermatology, Baltimore

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Sensitization to Antistine. M. M. Mosko and W. L. Peterson.—p. 1.
Failure of Aureomycin and Chloromycetin (Chloramphenicol) in Dermatitis Herpetiformis. C. Shaw.—p. 3.
Experimental Malaria in Man: II. Production of Sweat Retention Anidrosis and Miliaria Crystallina by Various Kinds of Injury. W. B. Shelley and P. N. Horvath.—p. 9.
Observations on Peripheral Blood Flow in Chronic Lupus Erythematosus. S. E. Huff, H. L. Taylor and A. Keys.—p. 21.
Histochemical Study on Polysaccharides in Normal and Diseased Skin. R. Stoughton and G. Wells.—p. 37.
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Studies in Mucous Membrane Sensitization: Part III. Effects of Toothpowder Containing Penicillin. L. Goldman and A. J. Tronstein.—p. 57.
Basidiomycete Probably Causing Onychomycosis. A. M. Kligman.—p. 67.

Journal of Lab. and Clinical Medicine, St. Louis

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The Pure Delight. E. V. Allen.—p. 2.
Effects of 4-Hydroxycoumarin Anticoagulant No. 63 upon Prothrombin Time in Dogs and Human Beings. W. D. Battle, R. T. Capps, O. S. Orth and O. O. Meyer.—p. 8.
Prothrombin Determinations in Dicumarolized Patients: Comparison of One-Stage and Bedside Methods. D. W. Lews, F. L. Munro and M. P. Munro.—p. 16.
Hemolytic Disease of the Newborn: I. Analysis of Sample of Obstetric Population. S. P. Lucia and M. L. Hunt.—p. 24.
Id.: II. Analysis of Maternal Ante-Partum Factors in Sample of Sensitized Rh-Negative Women in Relation to Clinical Condition of Their Offspring. S. P. Lucia and M. L. Hunt.—p. 28.
Effect of Vitamin B12 on Urinary Phenol Fractions in Pernicious Anemia. L. D. Abbott Jr. and G. W. James III.—p. 35.
Biochemical Studies on Urokon (Sodium 2, 4, 6-Triiodo-3-Acetylaminobenzoate), New Pyelographic Medium. D. R. Neuhaus, A. A. Christman and H. B. Lewis.—p. 43.
*Effects of New Sympatholytic Drug (Priscol) on Peripheral Circulation in Man. K. G. Wakim, G. A. Peters and B. T. Horton.—p. 50.
Effect of Procaine Penicillin on Bacteriostatic Action of Sulfadiazine. D. Goldberg and B. M. Kagan.—p. 63.
Relationships Between Serum Water or Weight and Protein Concentration. T. S. Danowski and G. H. Gilmore.—p. 67.
Comparative Electrophoretic and Chemical Estimations of Human Serum Albumin: Evaluation of Six Methods. B. V. Jager, T. B. Schwartz, E. L. Smith and others.—p. 76.
Renal Extraction and Excretion of Carinamide (4'-Carboxyphenylmethanesulfonanilide). H. M. Peck, E. K. Tillson, W. S. Waller and K. H. Beyer.—p. 87.
Removal of Cations from Solutions and Rat's Alimentary Canal by H-Form Resins. J. S. Ch'en and S. Freeman.—p. 99.

Effect of a Sympatholytic Drug on Peripheral Circulation.—Wakim, Peters and Horton studied the effects of 2-benzyl-4,5-imidazoline hydrochloride (priscol®) on the peripheral circulation of 10 volunteers, 5 with various degrees of multiple sclerosis and 5 subject to various types of headache. The drug was administered intravenously in a single dose of 50 mg. in 2 cc. of solution over a period of two minutes. Observations were made with the aid of the venous occlusion plethysmograph and a compensating spirometer recorder, the digital plethysmograph and potentiometric recording of the skin temperature over various regions of the body, including the fingers and toes. The oral temperature and the arterial blood pressure were obtained by the usual clinical procedures. The sympatholytic drug produced in the arms and legs a definite increase in blood flow, which lasted several hours. The systolic blood pressure increased an average of 6 mm. of mercury and the diastolic decreased an average of 11 mm. The changes in arterial blood pressure were transient; the blood pressure returned to the preinjection level within fifteen minutes after intravenous administration of the drug. There was a definite and immediate increase in heart rate which averaged 26 beats, with a range of plus 6 to plus 48 per minute over the control rate. The heart rate returned to the preinjection level within fifteen minutes after administration of the drug. There was a definite increase in the amplitude of the digital pulse even during the rapid heart rate produced by the sympatholytic agent. The greatest increase in the temperature of the skin was produced over the lower extremities, especially the toes. Since the control temperature of the toes was the lowest of all the areas over the various parts of the body from which cutaneous temperatures were recorded, it can be assumed that the drug produced the greatest vasodilatation in regions where vasoconstriction was most pronounced, namely, in the toes.

Journal of the Mount Sinai Hospital, New York

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Searching for New Chemotherapeutic Agents—Travelogue. S. A. Waksman.—p. 267.
Maxillo-Facial Triad and Its Corrections. I. B. Goldman.—p. 285.
Chorionepithelioma of Infundibulum with Discrete Hemic Metastases in Posterior Lobe of Pituitary. G. F. Perry.—p. 291.
Production of Constant Plasma Penicillin Level by Means of Daily Injections of Procaine Penicillin in Oil with Aluminum Monostearate. L. E. Schaefer and I. A. Rashkoff.—p. 300.
To-And-Fro Motion Range at Fourth and Fifth Lumbar Interspaces. S. S. Tanz.—p. 303.
Life's Later Years: Studies in Medical History of Old Age. F. D. Zeman.—p. 308.

J. Neuropathology & Exper. Neurology, Baltimore

9:1-118 (Jan.) 1950

Neuropathology: Historical Sketch. G. B. Hassin.—p. 1.
Experimental Studies in Allergic Encephalomyelitis: Prevention and Production—III. A. Ferraro, L. Roizin and C. L. Cazzullo.—p. 18.
*Fatalities Resulting from Exposure to Simulated High Altitudes in Decompression Chambers: Clinicopathologic Study of 5 Cases. W. Haymaker and C. Davison.—p. 29.
*Disseminated Necrotizing Panarteritis (Periarteritis Nodosa): Clinico-Pathologic Report. N. W. Winkelman and M. T. Moore.—p. 60.
Experimental Allergic Brain Inflammation, Morphological Study. R. A. Good.—p. 78.
Amyloid Degeneration of Human Brain Following X-Ray Therapy. K. Lowenberg-Scharenberg and R. C. Bassett.—p. 93.

Fatalities from Simulated High Altitudes.—Haymaker and Davison report the occurrence of death from exposure to simulated high altitudes of 30,000 to 38,000 feet in 5 airmen who were subjected to lowered barometric pressure in decompression chambers for purposes of indoctrination in the hazards of flying at high altitudes and in the use of oxygen equipment. Four of the men were between the ages of 22 and 26, and 1 was 38. All were in good health before the tests were begun. Although there is decreased oxygen pressure of arterial blood at altitudes of 30,000 to 38,000 feet despite the breathing of pure oxygen, hypoxia was not regarded as a determining factor in the outcome, but rather aeroembolism which led secondarily to fatal shock. Other factors, such as agglutination of erythrocytes and sludging could not be ruled out as important in the outcome. There were bends and/or chokes in only 2 instances. The disorder was manifested by focal cerebral signs in 4, and by apparently uncomplicated irreversible shock in the fifth. Most of the pathologic changes in the thoracic and abdominal viscera were those commonly observed in shock. Fat emboli in the lungs in 4 instances and in the brain in the fifth were believed to have entered the circulation in the bone marrow. The brain changes were characterized by congestive phenomena, ischemic damage of cortical nerve cells and beginning demyelination and glial proliferation perivascularly. Changes in the spinal cord similar to those in caisson and diver's sickness were observed in 1 case. Why death occurred in these particular 5 men was not ascertained. A tendency to adiposity or actual adiposity was the only known factor predisposing to decompression illness which was common to this group.

Disseminated Necrotizing Panarteritis.—Winkelman and Moore suggest the term disseminated necrotizing panarteritis instead of periarteritis nodosa or polyarteritis nodosa because it is anatomically and pathologically more accurate and more descriptive of the process. A man aged 63 presented the clinical quadrad of asthma, peripheral neuropathy, eosinophils in excess of 25 per cent and the use of sulfonomide compounds and penicillin on two occasions. The antemortem diagnosis of necrotizing panarteritis was substantiated by biopsy. An Addisonian syndrome was present which was later verified by examination of the adrenals. Involvement of the nervous system was recognized clinically as the disease progressed and was confirmed by autopsy. Laboratory observations were characteristic of the disease. Gross and/or microscopic studies revealed involvement of all the systems of the body except the lungs with the lesions of necrotizing panarteritis. Microscopic studies of the brain revealed involvement of the smaller arteries in the meninges, choroid plexus, cortex and subcortex. There were infarctions secondary to either rapid or slowly thrombosed vessels. There were also various stages of healed lesions in the cerebral cortex and subcortex, as well as in the cerebellum. The changes in the vessels were characteristic of necrotizing panarteritis. The large vessels were

spared. The meninges showed evidence of both recent and old hemorrhage and mild inflammatory invasion. The most provocative and seemingly the most valid etiologic concept of necrotizing panarteritis is that of an irreversible allergic process in the vessel wall. The collagen in the medium-sized blood vessels is probably the tissue in which the initial allergic phenomenon occurs.

Journal of Nutrition, Philadelphia

40:1-176 (Jan.) 1950. **Partial Index**

Biological Values of Six Partially Purified Proteins for Adult Albino Rat. H. H. Mitchell and J. R. Beadles.—p. 25.
Resurvey of Nutritional Status in Norris Point, Newfoundland. G. A. Goldsmith, W. J. Darby, R. C. Steinkamp and others.—p. 41.
Influence of Tryptophan upon Urinary Nitrogen and Amino Acid Excretion in Rat. A. A. Wykes, L. M. Henderson and C. A. Elvehjem. —p. 71.
*Comparison of Parenterally and Orally Supplied Protein Hydrolysate for Utilization of Nitrogen in Long Continued Feeding Experiments. C. Alper, B. F. Chow and S. DeBiase.—p. 81.
Interrelationship of Folacin, Vitamin B_{12} and Choline: Effect on Hemorrhagic Kidney Syndrome in Rat and on Growth of Chick. A. E. Schaefer, W. D. Salmon, D. R. Strength and D. H. Copeland.—p. 95.
Relation of Structure of Choline-like Compounds to Renal Antihemorrhagic Action. A. D. Welch.—p. 113.
Amino Acids in Blood and Urine of Human Subjects Ingesting Different Amounts of Same Proteins. B. F. Steele, M. S. Reynonds and C. A. Baumann.—p. 145.
Effect of Xanthophyll on Utilization of Carotene and Vitamin A by Rat. B. Kelley and H. G. Day.—p. 159.

Utilization of Parenterally and Orally Supplied Protein Hydrolysate.—Alper and his co-workers describe observations on dogs which were depleted of protein reserves by protein-free diets with and without plasmapheresis. Repletion was carried out by parenteral infusion of casein hydrolysate for an extended period, followed by a like period of oral feeding of casein hydrolysate. Even though partial repletion had been effected by intravenous infusion of casein hydrolysate, the dogs retained more nitrogen when the oral route was used than when the parenteral route was used, although more of the nitrogen retained from parenteral feeding was utilized for plasma protein regeneration.

Journal of Urology, Baltimore

63:1-194 (Jan.) 1950. **Partial Index**

*Renal Injuries. J. C. Sargent and C. R. Marquardt.—p. 1.
Evaluation of Merits of Cystoscopy and Retrograde Pyelography in Management of Renal Trauma. L. A. Orkin.—p. 9.
Successful Nephrectomy in Known Hemophiliac. V. Vermooten.—p. 30.
Consideration of Problems Presented by Unilateral Cystic Kidney Disease. N. Kutzman and H. R. Sauer.—p. 34.
Hypoplastic Kidney and Atrophic Pyelonephritic Kidney. J. S. Ritter and S. E. Kramer.—p. 48.
Hematuria and Sickle Cell Disease: Unexplained, Gross Unilateral, Renal Hematuria in Negroes, Coincident with Blood Sickling Trait. W. E. Goodwin, E. F. Alston and J. H. Semans.—p. 79.
Kidney Function in Patients with Paraplegia. G. W. Rogers and E. Bors.—p. 100.
Interstitial Cystitis. J. A. Seaman.—p. 105.
Complete Regression of Carcinoma of Bladder Following Ureterosigmoidostomy. L. G. Goldberg.—p. 116.
Study of Untreated Bladder Cancers. H. R. Sauer, M. S. Blick and D. J. Meehan.—p. 124.
Choice of Operative Approach for Prostatectomy. J. H. Harrison and E. F. Poutasse.—p. 132.
Transurethral Prostatic Resection: Comparison of Two Series of Cases. M. A. Johnson and A. H. Gundersen.—p. 147.
Transient Bacteremia Immediately Following Transurethral Prostatic Resection. C. L. Biorn, W. H. Browning and L. Thompson.—p. 155.
Ivanissevitch Operation. E. L. Lewis.—p. 165.
Permanent Artificial (Silicone) Urethra. R. R. De Nicola.—p. 168.
Erythroplasia of Queyrat: 2 Case Reports. M. E. Klinger and R. U. Northrip.—p. 173.
Congenital Absence of Vas Deferens: Review of Literature and Report of 3 Cases. R. E. Nelson.—p. 176.
Actinomycosis of Testicle. R. H. Hepburn.—p. 183.
Surgical Treatment of Elephantiasis. D. F. McDonald and C. Huggins. —p. 187.

Renal Injuries.—The combined experience of Sargent and Marquardt consists of about 200 cases of renal injury treated during the past quarter century. Minor fractures existed in 120 cases, major fracture in 72 and shattered kidney in 14. All minor renal injuries were treated conservatively. Contusions and minor parenchymal fractures always heal spontaneously and without serious consequence. Of the 72 cases with major parenchymal fracture but with pelvic architecture reasonably preserved, only 2 were subjected to immediate surgical treatment. This was before the authors had learned to have proper regard for shock when contemplating major surgical measures. One of the patients died an hour after removal of a fractured kidney. The second patient recovered after drainage of a simple perirenal hematoma. The other 70 nonfatal cases of parenchymal fracture were treated expectantly: 61 patients recovered from their renal injury and 27 of these, who have been followed three to seventeen years, are free from disability. In 9 of the 70 patients treated conservatively there developed complications that required subsequent surgical treatment. All 9, with the exception of a pensioned veteran who refused nephrectomy, regained their health. Of the 14 cases in which the kidney was completely shattered, 6 were diagnosed at autopsy, there having been no opportunity for other than expectant treatment. Of the 2 other cases of shattered kidney that were treated expectantly, one, a shrapnel injury, required nephrectomy months later for a urinary fistula. The other required nephrectomy seven days later when well out of shock. Six of the 14 cases with shattering injury had immediate operation. Four of the 6 were of that type about which there is agreement: the patient with a kidney shattered beyond hope of saving, presenting signs of progressive bleeding, yet ready for operation before shock has set in. Each of these 4 patients recovered. The remaining 2 had to be operated on to close bowel perforations. Despite considerable shock, a nephrectomy was added; 1 patient died on the operating table, the other within hours. The authors believe that no renal injury can be managed intelligently without knowledge as to its type and degree; that means usually a retrograde pyelogram must be made. Surgical treatment should be withheld until a clearcut indication for it arises. They regard renal surgery to be unwise, even to control hemorrhage, if the patient is in profound shock.

Laval Médical, Quebec

15:1-142 (Jan.) 1950. **Partial Index**

Anesthesia in Pediatrics. F. Hudon and A. Jacques.—p. 12.
Intercapillary Glomerulosclerosis (Kimmelstiel and Wilson Syndrome). R. Lemieux.—p. 23.
Removal of Lacrimal Sac and Intranasal Fistulization. H. Pichette, J. Audet and C. Gélinas.—p. 31.
*Myasthenia Gravis in Child Aged Four and a Half Years. R. Thibaudeau.—p. 44.

Myasthenia Gravis in Child.—Thibaudeau reports 1 case of myasthenia gravis in a boy aged 4½ years. There was a sudden onset of the disease with unexplained fatigue. Ptosis of the upper eyelids was the first sign serving as a guide to the diagnosis. Within four months after the appearance of this sign the pseudoparalysis continued its course by involving the muscles of the face, of the extremities and of the trunk. Death resulted from cardiac failure during a myasthenic attack within six months after the onset of the disease. Death could not be prevented by the administration of large daily doses of eight to twelve tablets of 15 mg. of neostigmine bromide by mouth and additional subcutaneous injections of three and one half ampuls of 1.5 mg. neostigmine methylsulfate per day. Roentgen irradiation of the thymus was performed several days before death to combat a presumed hypertrophy of the thymus. A degenerative inflammatory process in the thymus was demonstrated at necropsy.

Missouri State Medical Assn. Journal, St. Louis

47:1-80 (Jan.) 1950

Regulation of Volume and Composition of Body Fluids. J. P. Peters. —p. 9.
Epigastric Pain. A. C. Ivy.—p. 17.
Bilateral Cortical Necrosis of Kidneys. W. A. Werner, R. I. C. Muckerman and H. N. Allen.—p. 20.
Liver Dysfunction Diagnostic Laboratory Procedures. W. A. Knight Jr. and R. O. Muether.—p. 25.

47:81-152 (Feb.) 1950

Endoscopic Treatment of Tumors of Bladder: Experiences with 525 Cases. C. E. Burford, J. E. Gleen and E. H. Burford.—p. 97.
Clinical Aspects of Acute Myocardial Infarction. E. B. Bay.—p. 106.
Cafergone for Relief of Headache. R. E. Ryan.—p. 107.
Comparative Effectiveness of Methylergonovine Tartrate (Methergine) and Ergonovine in Third Stage of Labor. L. M. Riordan, H. C. Stricker, N. A. Correnti and H. P. Torkelson.—p. 108.
Diabetes Mellitus: Treatment with Intermediate Insulins. A. R. Colwell.—p. 113.

New England Journal of Medicine, Boston

242:77-114 (Jan. 19) 1950

*Coccidioidomycosis: Hazard Involved in Diagnostic Procedures, with Report of Case. J. M. Looney and T. Stein.—p. 77.
Complete Pelvic Evisceration in Male for Complicated Carcinoma of Rectum: Use of Defunctionalized, Sterilized Loop of Colon for Ureterosigmoid Anastomosis. J. E. Thompson and C. W. Howe.—p. 83.
Adrenocortical Hypoplasia in Newborn Infant: Report of Case with Replacement Therapy. R. W. Provenzano.—p. 87.
Effect of 10 per Cent and 100 per Cent Oxygen Inhalation on Certain Liver-Function Tests. P. Kaufman, J. Hollo, J. Rosenthal and others.—p. 90.
Urology. F. H. Colby.—p. 93.
Amyloid Infiltration of Tongue, Salivary Glands and Cervical Lymph Nodes. Probable Plasma-Cell Myeloma.—p. 98.
Renal-Vein Thrombosis in Newborn Infant.—p. 100.

242:115-160 (Jan. 26) 1950

Better Surgery and Better Surgeons. E. M. Porter.—p. 115.
Chloromycetin (Chloramphenicol) in Treatment of Infections. W. L. Hewitt and B. Williams Jr.—p. 119.
Withdrawal Treatment of Drug Addiction. M. Nyswander.—p. 128.
Prophylaxis of Rhus Toxicodendron Dermatitis. R. J. Hoagland.—p. 130.
Obstetrics. B. Tenney Jr.—p. 133.
Pulmonary Emphysema. Sarcoidosis of Lung and Bronchial Lymph Nodes.—p. 149.
Acute Diverticulitis of Esophagus, with Hemorrhage.—p. 152.

Coccidioidomycosis.—According to Looney and Stein, a serious hazard is involved in making a laboratory diagnosis of the presence of Coccidioides immitis in suspected material. The workers in the hospital laboratories who handle pathogenic material are affected primarily by this risk. A survey of the literature shows that 8 such cases of infection with clinical manifestations of coccidioidomycosis, which were proved by the isolation and identification of the organism, have been reported. One of these cases was fatal. An additional 25 cases of infection as shown by positive coccidioidin skin tests were also due to handling of cultures of the organism in laboratories. The authors report 1 case of disseminated infection with C. immitis contracted by a hospital laboratory technician, during the handling for thirty to forty-five minutes of some old cultures of a fungous growth which later was identified as C. immitis. In examining these cultures he had removed the top of the Petri dish and had studied the gross specimens at close range with a magnifying lens, in addition to making smears for microscopic examination. Within two to three weeks he noted severe chest pain and spiking temperatures typical of the acute respiratory form of the initial infection. He continued to run a septic course for two months with increased leukocytosis and eosinophilia. A definite early diagnosis was made by recovery of the organism from the sputum. Rapid enlargement of the mediastinal lymph nodes was demonstrated on roentgenologic examination. The patient was confined to the hospital for fourteen months because of involvement of the bones of the right foot and left hand. Rest and symptomatic treatment are the only means now available for handling coccidioidal infections. Examination of the older growths for chlamydospores is an extremely hazardous procedure and should be forbidden. The danger is not only that the person making the examination may be infected but also that others who may be long distances from the spot may also be infected. Subclinical infections occurred in 3 additional technicians among 20 persons working in the same laboratory.

New Jersey Medical Society Journal, Trenton

47:47-96 (Feb.) 1950

Brain Tumors in Children. S. A. Sandler.—p. 49.
Two-Lateral Anastomosis: Safe, Simple and Efficient Technic. C. H. Evans.—p. 56.
Treatment of Menopausal Symptoms with New Synthetic Estromimetric Compound. J. J. Rommer.—p. 58.
Hereditary Hemorrhagic Telangiectasia with Severe Epistaxis: Report of 3 Cases. O. Gambacorta.—p. 61.
Arthritic Derangements of Hip. B. M. Halbstein.—p. 64.
Amphetamine Phosphate Preparations in Treatment of Obesity: Clinical Evaluation. S. W. Kalb.—p. 66.
Cranial Nerve Pareses Following Anti-Rabies Vaccination: Case Report. W. Rubin and N. Bowman.—p. 68.
Management of Lower Nephron Nephrosis Following Transfusion for Post-Partum Hemorrhage. A. H. Krakower and S. Gerson.—p. 72.

Ohio State Medical Journal, Columbus

46:105-200 (Feb.) 1950

Acute Appendicitis. C. R. Lulenski.—p. 121.
Sudden Death During Surgical Operations, with Report of Efforts to Revive Heart. H. Feil and H. K. Hellerstein.—p. 125.
Propyl and Methyl Thiouracil and Radioactive Iodine in Treatment of Hyperthyroidism. E. P. McCullagh.—p. 127.
Interpretation of Psychosomatic Complaints to the Patient. B. Crider and R. Schott.—p. 130.
*Treatment of Acute Leukemia of Childhood. R. W. Heinle.—p. 133.
Elective Surgery in Infancy. H. W. Lehrer, H. G. Lehrer and D. R. Lehrer.—p. 136.
Transient Diabetes Insipidus Complicating Bacterial Endocarditis. S. M. Sancetta and H. A. Zimmerman.—p. 140.

Folic Acid Antagonists in Leukemia.—According to Heinle the pteroylglutamic acid antagonists are compounds chemically similar to pteroylglutamic acid. Thus, aminopterin (4-amino-pteroylglutamic acid) has an amino group (NH_2) in place of a hydroxyl-group (OH) of pteroylglutamic acid. A-methopterin (4-amino-N^{10}-methyl pteroylglutamic acid) has a similarly substituted amino group in addition to which a methyl group (CH_3) replaces one hydrogen atom of pteroylglutamic acid. Pteroylglutamic acid is necessary for the proper growth of leukocytes, as well as in the metabolism of many, if not all, other cells of the body. The antagonists act by competing with folic acid in the metabolism of the cells. The therapeutic use of the pteroylglutamic acid antagonists in the acute leukemias was begun after it had been demonstrated that acute leukemia in children and chronic myeloid leukemia in adults were aggravated by the administration of pteroylglutamic acid. Twenty-six children with acute leukemia, 6 adults with acute monocytic and 2 with acute lymphoid leukemia were treated with the pteroylglutamic acid antagonists at the University Hospitals of Cleveland. In addition, 2 adults with chronic myeloid leukemia were treated with a weak antagonist in association with a diet deficient in pteroylglutamic acid. The author observed that considerable remissions with prolongation of life could be attained with the use of the pteroylglutamic acid antagonists in acute leukemia of childhood but that acute leukemia in adults was entirely refractory, although other workers have reported beneficial effects in some cases. The antagonists are extremely toxic and can cause death unless administration is carefully controlled. The use of blood transfusions and penicillin constitutes an important part of the treatment of acute leukemia.

Oklahoma State Medical Assn. Jour., Oklahoma City

43:1-44 (Jan.) 1950

Task of Practitioner in Child Health Protection. M. E. Wegman.—p. 4.
Hay Fever in Infants. T. Shuller.—p. 9.
Early Diagnosis and Treatment of Meningitis in Infants. L. S. Frank.—p. 12.
"I've Felt This Way Since Mary Was Born." G. Rogers.—p. 14.
Pediatrics in General Practice. H. V. Sturgeon.—p. 17.

43:45-84 (Feb.) 1950

Cancer of Stomach: Clinical Problems Influencing Prognosis. J. E. Berk.—p. 48.
*Newer Concepts in Treatment of Bronchiectasis. R. L. Anderson.—p. 53.
Aureomycin and Chloromycetin. E. I. Mulmed.—p. 55.
Role of University Hospital in Cancer Program. H. G. Bennett Jr.—p. 61.
Participation of Practicing Physician in Local Health Service. C. E. Green.—p. 63.

Treatment of Bronchiectasis.—Anderson stresses that once bronchiectatic changes have developed in the segmental bronchi they are not reversible and surgical removal is the only reliable method. Closer attention to the detailed anatomy of the lung has revealed definite segments, each of which has its own bronchus and arterial blood supply. The bronchus and artery can be identified by hilar dissection and these structures ligated and the segments removed. The advantages of segmental resection over lobectomy are that only diseased portions of the lung are removed, that all possible normal lung is retained, that vital capacity is not sacrificed, that the remaining lung need not reexpand to fill such a large space as in lobectomy and that bilateral bronchiectasis can be surgically attacked and bilateral disease removed. The author regards segmental resection of the lung as the most satisfactory treatment of bronchiectasis.

Philippine Medical Association Journal, Manila

25:519-600 (Nov.) 1949. **Partial Index**

*Influence of Artificially Enriched Rice on Beriberi Mortality in Bataan Province. J. Salcedo Jr., M. D. Bamba, E. O. Carrasco and others. —p. 519.
Cancer Control in the Philippines: Role of Private Practitioners and Surgeons. J. Z. Sta. Cruz.—p. 535.
Ophthalmological Misconceptions in Medical Practice in Philippines. G. de Ocampo.—p. 545.

Artificially Enriched Rice and Beriberi Mortality.—Salcedo and associates point out that in the Philippines the death rate from beriberi is exceeded only by that from tuberculosis. An attempt is being made to reduce the incidence of beriberi in selected municipalities of Bataan Province, an endemic area, through the artificial enrichment of the rice supply. As a basis for the experiment, an eight month clinical beriberi survey was made which included dietary appraisal, urine and blood examinations, and careful compilation of statistics of beriberi mortality. After this survey artificially enriched rice was tried in seven municipalities of Bataan Province with a total population of 63,508. The results after nine months indicate a more substantial and significant reduction in mortality from beriberi in the area fed with enriched rice than in five municipalities of the same province, with a total population of 29,393, where only ordinary polished rice was consumed.

Physiological Reviews, Baltimore

30:1-126 (Jan.) 1950

Functional Significance of Venous Blood Pressure. E. M. Landis and J. C. Hortenstine.—p. 1.
Gastrointestinal Hormones. M. I. Grossman.—p. 33.
Biochemistry of Melanin Formation. A. B. Lerner and T. B. Fitzpatrick.—p. 91.

Public Health Reports, Washington, D. C.

65:1-42 (Jan. 6) 1950

Studies of Pulmonary Findings and Antigen Sensitivity Among Student Nurses: V. Doubtful Reactions to Tuberculin and Histoplasmin. C. E. Palmer and O. S. Petersen.—p. 1.

65:43-70 (Jan. 13) 1950

Studies of Action of Sodium Fluoride on Human Enamel by Electron Microscopy and Electron Diffraction. D. B. Scott, R. G. Picard and R. W. G. Wyckoff.—p. 43.
Serological Survey for Murine Typhus Infection in Southwest Georgia Animals. H. B. Morlan, E. L. Hill and J. H. Schubert.—p. 57.

65:71-98 (Jan. 20) 1950

Effects of DDT Mosquito Larviciding on Wildlife: IV. Effects on Terrestrial Insect Populations of Routine Larviciding by Airplane. H. I. Scudder and C. M. Tarzwell.—p. 71.
Q Fever—Epidemiological Note. E. A. Beeman.—p. 88.

Rhode Island Medical Journal, Providence

33:1-56 (Jan.) 1950

Endometriosis: Report of 400 Cases. J. Fallon, J. T. Brosnan, J. J. Manning and others.—p. 15.
Metastatic Calcification and Renal Failure Following Ertron Therapy in Aged Arthritic. H. Hecker.—p. 21.
Aureomycin in Treatment of Pemphigus: Report of Case. P. L. Mathieu Jr.—p. 24.
Herpes Zoster Oticus: Report of Case. C. A. McDonald and W. J. O'Connell.—p. 28.

Rocky Mountain Medical Journal, Denver

47:1-80 (Jan.) 1950

Is the Patient Always Right? C. P. Bunch.—p. 20.
Clinical Variations of Renal Amyloidosis. J. C. Tyor and H. T. Kuo. —p. 22.
Easily Constructed, Inexpensive Rubber Walking Heel. M. E. Gibbens. —p. 26.
Tick Paralysis in Northwestern United States and British Columbia. W. L. Jellison and J. D. Gregson.—p. 28.
*Broadening Scope of Gastric Resection. E. S. Judd Jr.—p. 33.

The Broadening Scope of Gastric Resection.—Judd stresses the following points in favor of operative treatment: 1. Lowered morbidity and mortality rates have extended gastric resection to a far larger proportion of cases. 2. Duodenal ulcer can still be controlled completely and permanently by adequate gastric resection. 3. Gastric resection is the treatment of choice in almost all cases of gastric ulcer. 4. Lessened risk of gastric resection extends its use to certain lesions encountered only occasionally. 5. Failure of several less radical operations led the way to wider acceptance of resection. 6. Preoperative and postoperative adjuncts have been responsible for better results. 7. Technical improvements and modifications allow use of gastric resection even in conditions with extreme inflammation.

South Carolina Medical Assn. Journal, Florence

46:1-36 (Jan.) 1950

Difficulties in Diagnosis of Coronary Artery Disease. J. A. Boone. —p. 1.
Sarcoidosis: Case Report. R. W. Lominack.—p. 3.
Traumatic Diaphragmatic Hernia. K. M. Lippert, W. J. Rowe and H. Protozky.—p. 5.
South Carolina Heart Association and Its Program of Cardiac Clinics. J. A. Boone.—p. 11.
Cancer. R. W. Postlethwait.—p. 13.

46:37-68 (Feb.) 1950

Current Trends in Cancer Research. J. R. Heller.—p. 37.
What Thoracic Surgery Has to Offer the General Practitioner. H. L. Rigdon.—p. 40.
Gangrene of Breast Associated with Diabetes Mellitus: Report of Case. P. K. Switzer.—p. 42.

U. S. Armed Forces Med. Jour., Washington, D. C.

1:1-136 (Jan.) 1950. **Partial Index**

Hyperthyroidism: Diagnosis and Treatment. U. R. Merikangas.—p. 1.
*Extrusion of Redundant Gastric Mucosa into Duodenum. F. C. Harris and E. T. Byrne.—p. 12.
Gunshot Wounds in 8th Air Force in World War II. J. A. Rafferty. —p. 22.
Administration of Procaine Intravenously: III. Traumatic Surgery. R. J. M. Zeluff.—p. 26.
Bronchiectasis. H. A. Lyons and T. C. Ryan.—p. 30.
Stevens-Johnson Disease: Report of Case. W. P. Barba II and A. M. Tyson.—p. 39.
Long-Cuff Endotracheal Tube: Its Manufacture and Use. R. T. Knight and A. B. Tarrow.—p. 58.
Experiences with Marrow Nail Operation According to Principles of Kuentscher: Gunshot Fractures of Femur: Part V. C. Haebler.—p. 63.
Spontaneous Rupture of Spleen in Relapsing Fever. C. W. Legerton and W. L. Chambers.—p. 88.
Psychiatry in General Practice. J. L. McCartney.—p. 91.
Advantages of Air Transportation of Patients. W. F. Hall and J. D. Nolan.—p. 115.
Immunizations for Foreign Travel. W. F. Hall.—p. 119.
About Army Medical Department. P. I. Robinson and R. J. Richards Jr.—p. 121.

Extrusion of Redundant Gastric Mucosa.—According to Harris and Byrne the terms herniation, prolapse, extrusion and protrusion of the gastric mucosa have been used interchangeably for the condition in which the gastric mucosa is found sliding through the pyloric ring into the duodenum. This condition occurs frequently enough so that it must be considered as a possible causative factor in upper gastrointestinal complaints. The authors review observations on 30 cases, in 9 of which surgical treatment was employed. The pyloric ring was always palpated prior to section. The pyloric ring was believed to be constricted either by spasm or hypertrophy. In 2 instances there was evidence of trauma to the hyperthrophic mucosal folds from the constricted pyloric ring. In 1 case visualization from the duodenal side revealed a rosette of red edematous gastric mucosa protruding through the pylorus, analogous to protruding hemorrhoids. The authors are of the opinion that the underlying causative factor may be primarily either spasticity or hypertrophy of the pyloric musculature. Histologic examination in 6 cases showed a moderate lymphocytic infiltration of the submucosa but insufficient evidence to establish chronic gastritis. The symptoms varied, but epigastric pain or upper abdominal distress was present in all cases. It may be confused with an ulcer-type pain. Abnormal sense of fulness after the consumption of a small amount of food was noted in a high percentage of patients. Vomiting was frequent. Hemorrhage was common. Gaseous eructation was so common that gallbladder disease was nearly always suspected. Extrusion of the gastric mucosa into the duodenum can at times be suspected from the clinical history, but it can be confirmed only by roentgenoscopy. The protruding folds of hypertrophic mucosa form a "cauliflower" or "mushroom"-shaped area of decreased density in the shadow of the duodenal bulb. Many patients with this disorder can be kept free of symptoms under medical management. Surgical treatment is indicated in patients not responding to diet and antispasmodics. Excision of the extruded mucosa with pyloroplasty is probably the procedure of choice.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine, Liverpool

43:261-392 (Dec.) 1949. **Partial Index**

Activation of Latent Kala-Azar in Relation to Protein Metabolism. N. L. Corkill.—p. 261.
Experimental Schistosomiasis: II. Maintenance of Schistosoma Mansoni in Laboratory, with Notes on Experimental Infection with S. Haematobium. O. D. Standen.—p. 268.
*Diagnostic Value of Bone-Marrow Biopsy in Malaria Caused by Plasmodium Falciparum. F. J. Zacharias.—p. 297.
*Histology of Lesions Caused by Sting of Hive-Bee (Apis Mellifica). W. Crewe and R. M. Gordon.—p. 341.
Chloroquine, Proguanil, Mepacrine and Quinine in Treatment of Malaria Caused by Plasmodium Falciparum. R. P. C. Handfield-Jones.—p. 345.

Bone Marrow Biopsy Not Justified in Falciparum Malaria.—Zacharias compared the concentration of parasites in the peripheral blood and sternal marrow of 41 patients with malaria due to Plasmodium falciparum and in 61 cases in which, after preliminary observation, the diagnosis of malaria remained unproved. He found that in acute malaria due to this organism the parasite concentration in the peripheral blood exceeds that in the sternal marrow by a small but significant amount. Consequently, in the diagnosis of acute falciparum malaria sternal puncture is not a justifiable procedure. Its interpretation is difficult and time-consuming, and the information obtained is not commensurate with the effort involved.

Lesions Caused by Sting of Bee (Apis Mellifica).—According to Crewe and Gordon the sting of the bee may affect the recipient in one of three ways: as a result of the poison injected from the poison glands; as a result of bacteria being introduced with the sting or later gaining access to the tissues through the wound caused by the sting, or as a result of allergic reactions in persons who have become sensitized to bee venom or to the pollen carried by the bee. The authors made experiments on guinea pigs which were kept in the laboratory so that there was no possibility of their having previously been sensitized to bee venom; nor did examination of the tissues reveal evidence of sepsis. Histologic studies were made on the local lesions resulting from a bee sting one hour, twenty-four hours and forty-eight hours after its infliction. The lesions produced included edema, cellular infiltration and muscle necrosis, these changes being followed by a walling-off of the damaged tissue by a palisade of inflammatory cells. These lesions are in contrast to the complete absence of inflammation following the uncomplicated bites of certain blood-sucking insects (mosquitoes, tsetse flies and Chrysops) previously studied.

British Journal of Urology, London

21:269-384 (Dec.) 1949. **Partial Index**

Classification of Epithelial Tumours of Bladder. C. E. Dukes and F. Masina.—p. 273.
Antibiotics in Urology. M. E. Florey.—p. 296.
Testicular Tumours: Late Results of Radical Surgery. A. W. Adams.—p. 329.
Function in Hydronephrotic Kidney. A. I. L. Maitland.—p. 334.
Some Observations on Bladder Neck Obstruction. H. P. Winsbury-White.—p. 342.
Investigation of Subfertility in the Male. W. S. Tulloch.—p. 350.
*Preliminary Communication on Intracavitary Irradiation of Bladder Mucosa by Radioactive Isotope Solution. D. M. Wallace, R. J. Walton and W. K. Sinclair.—p. 357.

Radioactive Isotope Solution for Intracavitary Irradiation of Bladder.—Wallace and associates call attention to the fact that the small, multiple, sessile lesions arising from an abnormal mucosa and involving a considerable area of the bladder wall present a difficult therapeutic problem. A short-lived radioactive isotope would present certain advantages over other forms of therapy, particularly with regard to safety, ease of introduction and duration of treatment. Radioactive sodium (Na^{24}) has been used for this purpose at the Royal Cancer Hospital. In order to protect the staff, the technic of introducing the solution into the patient is based on remote control. During the early treatments, the staff received a dose of about 0.4 r, but this has since been cut down to an average of 0.01 r and should be even less in the future. Everybody connected with the treatment carries an ionization chamber while in proximity to the active solution in order to measure the radiation received. The insertion of the catheter is relatively simple in females. In males, however, it has been found to be impossible to introduce the catheter through the intact urethra. Consequently, the catheter has been introduced through a perineal urethrotomy, using a curved, grooved sound and a gorget. The filling apparatus is mounted on a stand and surrounded with lead bricks for the protection of the operator. It consists of a 200 cc. flask with a two way tap at the top and at the bottom. The upper tap can be used to connect the flask to a water pump (suction) or to a hand-operated rubber bulb (pressure). The catheter is emptied of air and water as completely as possible. The radioactive solution is sucked into the central flask from its container, and then delivered into the catheter by applying pressure. Unless the bladder is either unusually capacious or, as a result of infection or previous treatment, unduly contracted, it is customary to use 150 cc. of radioactive solution. The bag is filled slowly over a period of ten minutes in order to obviate the pain which is sometimes caused by bladder spasm. The radioactive solution is colored a deep green as a means of identification in the apparatus or in the event of leakage. Urine draining from the catheter is examined at regular intervals to detect radioactivity. At the completion of treatment the radioactive solution is removed from the patient by suction. The exact quantity must be extracted. There were 10 patients treated within the last three months. All of the lesions have shown some regression.

British Medical Journal, London

1:81-138 (Jan. 14) 1950

Bearing of Recent Work on Virus Theory of Cancer. C. H. Andrewes.—p. 81.
Age of Puberty in Tropics. R. W. B. Ellis.—p. 85.
Pathology of Hypersensitivity Reactions in Man. H. Bergstrand.—p. 89.
Structure and Functions of Synovial Membrane. D. V. Davies.—p. 92.
Birth Weight and Subsequent Weight. R. S. Illingworth.—p. 96.
Comparison and Estimate of Group and Individual Methods of Treatment. A. S. Thorley and N. Craske.—p. 97.
Primary Torsion of Omentum in Children. A. B. MacLean.—p. 100.
Stomach of Recently Diseased. A. W. Williams.—p. 102.
Diphtheria Immunization with P.T.A.P. in Adults. T. M. Vogel-sang.—p. 104.

1:139-202 (Jan. 21) 1950

*Thymectomy in Myasthenia Gravis. H. R. Viets.—p. 139.
Proguanil-Resistant Falciparium Malaria in Malaya. J. F. B. Edeson and J. W. Field.—p. 147.
Hirschsprung's Disease in Infancy. E. D. Burnard.—p. 151.
Future of Occupational Health. D. Stewart.—p. 156.
Prognosis in Disseminated Sclerosis. M. Reinhold.—p. 160.
Gynaecomastia and Testicular Aplasia. D. Ferriman.—p. 162.
Brachial Plexus Block: Report of 350 Cases. S. V. Humphries.—p. 163.
Ankylosing Spondylitis Treated by Osteotomy of Spine. F. W. Stuart and G. K. Rose.—p. 165.

Thymectomy in Myasthenia Gravis.—Viets states that, among the 36 patients subjected to thymectomy at the Massachusetts General Hospital since 1941, 7 had thymomas and 29 showed various degrees of involution and formation of germinal centers in the thymic tissue. Three of the 7 patients with thymoma are living; one has survived six years. Two are greatly improved by the operation, and their condition is classed as excellent; one is considered fair. All but 4 of the 29 patients in the non-neoplastic series have survived. The results are classified as excellent in 3, good to excellent in 2, good in 5, fair to good in 2, fair in 2, poor to fair in 2 and poor in 2; in 7 sufficient time had not elapsed to estimate results. Patients should be treated orally with neostigmine for an adequate length of time before operation, and their course should be steady. Neostigmine may be given intravenously during thymectomy. Approximately 0.5 mg. of neostigmine methylsulfate given intravenously is equivalent in effect to 15 mg. of neostigmine bromide by mouth. Thymomas in general are benign tumors, but they may expand locally. Implants at the time of operation are possible. The significance of germinal center formation in the thymus is not clear. The presence of a large number of germinal centers is highly suggestive of myasthenia gravis. Results of thymectomy in the last nine years justify the continuation of the operation in patients with myasthenia gravis. The operative mortality should be zero, or close to it, if patients are carefully selected and adequately treated.

Journal of Clinical Pathology, London

2:161-240 (Aug.) 1949

Serum Proteins: Review. J. R. Marrack and H. Hoch.—p. 161.
Serum Copper Levels in Pregnancy and in Pre-Eclampsia. R. H. S. Thompson and D. Watson.—p. 193.
*Latent Carcinoma of Prostate. G. S. Andrews.—p. 197.
Use of Pancreatic Extract as Growth Stimulant for C. Diphtheriae. M. Gordon and K. Zinnemann.—p. 209.
Errors in Estimation of Streptomycin in Serum. D. A. Mitchison, H. D. Holt and S. H. Moore.—p. 213.
Studies In Vitro on Maturation of Erythroblasts in Normal and Pathological Conditions. G. Astaldi and P. Tolentino.—p. 217.
Dextran as Medium for Demonstration of Incomplete Anti-Rh-Agglutinins (Preliminary Report). R. Grubb.—p. 223.
Haemolytic Anaemia. M. Gatman and L. Hamilton.—p. 225.

Latent Carcinoma of Prostate.—Andrews reports a microscopic study of 142 prostates removed at necropsy from males between the ages of 15 and 79 in whom the diagnosis of carcinoma of the prostate had not been made clinically or on gross examination at necropsy. Step sections from each prostate, at roughly 4 mm. intervals through the gland, were examined. Carcinoma was observed in 17 (12 per cent) of the 142 prostates examined. It was not observed in prostates from subjects under the age of 40. The tumors were all adenocarcinomas which varied in histologic appearance but had certain features in common. In the main they were formed by small acini, which were usually composed of cubical cells. The malignant cells were definitely larger than those of the senile acini and were comparable in size to those of the small acini in benign hypertrophy; however, they differed from these in their irregular shape and irregular laminal border. Corpora amylacea were never seen in the carcinomatous areas. The basal layer of epithelial cells was never present, and the altered relationship to the stroma was most striking. The stroma propria was absent, and the malignant acini had grown into the supporting stroma, separating the muscle fibers and in many cases actually rupturing them. Six tumors contained, in addition to the small acini, larger acini which showed intra-acinar proliferation of cells with a tendency to form small acini within the main acinus. Perineural lymphatic invasion was present in 15 of the 17 prostates with carcinoma, and in 5 it was extensive. Latent carcinoma was observed most commonly beneath the capsule in the posterior lobe in men aged 60 or more. It was occasionally multifocal in origin. Benign hypertrophy and latent carcinoma of the prostate were associated in 16 of the 17 prostates with carcinoma. The observation of a distinctive hyperplasia, frequently in the posterior lobe, which may undergo a malignant change and is common to both benign hypertrophy and carcinoma, provides a closer link between the two conditions.

Lancet, London

1:145-190 (Jan.) 1950

Treatment of Leprosy with Diamino-Diphenyl Sulphone by Mouth. J. Lowe.—p. 145.
*Observations on Chloramphenicol. J. D. Gray.—p. 150.
Effect of Deoxycortone and Ascorbic Acid on Formaldehyde-Induced Arthritis in Normal and Adrenalectomised Rats. G. Brownlee.—p. 157.
Removal of Forceps from Abdominal Cavity. F. T. Ranson and M. Blumenfeld.—p. 159.
X-Ray Cinematography in Congenital Heart-Disease. R. Janker.—p. 160.

Observations on Chloramphenicol.—Gray describes a trial with chloramphenicol that was made in two groups of children with pertussis in the first two weeks of the disease and in the third or fourth week. In both groups alternate patients were given the drug or a placebo. The cases were too few for definite conclusions to be drawn, but satisfactory oral dosage schedules were worked out. Owing to the persistent bitter taste of chloramphenicol, administration by mouth to children aged 1 to 3 years presents difficulties. Rectal administration was tried, with suppositories and with pierced gelatin capsules, but proved ineffective. When chloramphenicol treatment is considered essential for children of this age, the drug may be given by stomach tube. In 1 child an urticarial reaction developed after she received a single dose of chloramphenicol. Since she could not have had access to the drug before, it is supposed that her sensitivity was due to massive bacterial death. Among the treated children given massive dosage, those who were old enough to notice visual symptoms had a peculiar internal ophthalmoplegia characterized by rapid fatigue of accommodation on reading, with recovery after a short rest. This was thought to be a peripheral effect. Experiments in adults confirmed the existence of this side action. Weight-holding tests showed that chloramphenicol hastens the onset of fatigue in skeletal muscles. Serial postnasal swabs showed that the drug completely sterilizes the mucous surfaces of the upper part of the respiratory tract. The sterility lasts two to three days after the last dose, but it can be maintained indefinitely by continuing administration. This property may prove of great value in surgery, especially if the sterilization is found to extend into the lungs.

1:191-238 (Feb. 4) 1950

Iron and Steel Industry. C. Swanston.—p. 191.
Control of Whooping-Cough in Nurseries. G. E. Breen, B. Benjamin and A. Beck.—p. 198.
Infantile Pyloric Stenosis: Review of 100 Cases Treated by Ramstedt's Operation. J. N. Ward-McQuaid and B. E. Porritt.—p. 201.
*Relief of Pain in Rheumatoid Arthritis with Tetraethylammonium Bromide. T. H. Howell.—p. 204.
Bilateral Rupture of Extensor Tendons of Knee. A. Fowler and G. P. Mitchell.—p. 205.
Flora of 100 Bronchial Secretions with Particular Reference to Anaerobic Cocci. J. G. Benstead.—p. 206.
Estimation of Urinary Neutral 17-Ketosteroids: Rapid Polarographic Method. W. R. Butt.—p. 208.
*Clinical Observations with Deoxycortone and Ascorbic Acid. D. Le Vay and G. E. Loxton.—p. 209.

Tetraethylammonium Bromide in Rheumatoid Arthritis.—A favorable effect following the intramuscular injection of 5 cc. of solution of tetraethylammonium bromide in a man with rheumatoid arthritis of his hands induced Howell to try this treatment in 3 men and 23 women. Only 1 patient with signs suggesting an active rheumatoid arthritis has not gained relief from this treatment. In 7 cases which did not seem to be active there was no response. Three patients showed no response after the first administration of the drug, but had freedom from pain after the second and third injections. Sixteen patients claimed either considerable relief or complete absence of pain for a time after administration. One patient had 9 successive good responses. The duration of freedom from pain varied from five days to seven months. The effect of tetraethylammonium bromide is usually felt within an hour or less, but in some cases the onset of relief has been delayed. In the cases in which tetraethylammonium bromide was not effective the pain originated in the circumarticular tissues and not in the joint. Some patients with massive fibrositis in addition to their rheumatoid arthritis state that their "soft tissue" pain is made worse by tetraethylammonium bromide, even when the joints are relieved. Patients with osteoarthritis do not seem to benefit.

Deoxycortone and Ascorbic Acid.—Le Vay and Loxton say that since Lewin and Wassén reported their results with combined injections of deoxycortone acetate and ascorbic acid in rheumatoid arthritis, they have made observations in 80 cases of rheumatoid polyarthritis and also in monarticular varieties of this disease, in ankylosing spondylitis and in osteoarthritis. Originally 5 mg. of deoxycortone acetate in peanut oil was given intramuscularly, followed within five minutes by 1 Gm. of ascorbic acid given intravenously (technic *A*). Later a single dose intravenous technic was used, with an aqueous solution of 5 mg. of deoxycortone glucoside mixed in the syringe with the ascorbic acid (technic *B*). More recently the authors have been trying the effect of a single intramuscular dose of the oily deoxycortone and the aqueous ascorbic acid, mixed in and given with one syringe (technic *C*). As a result of the injection there is partial or complete disappearance of pain and spasm, increased speed, ease and range of joint movement, and a variable sense of exhilaration. The duration of the response varies from a few hours to several days but is rarely as long as a week. The results are better in the monarticular form of rheumatoid arthritis than in the polyarticular form. The action is nonspecific, inasmuch as active cases of ankylosing spondylitis and gonococcic arthritis respond in the same way. Osteoarthritis is not affected except in certain circumstances. The authors also cite cases of fracture and sprains in which the described treatment reduced the pain and increased ease and range of joint movements. They believe that deoxycortone and ascorbic acid act peripherally and not through the agency of the adrenals or other internal organs.

Practitioner, London

164:1-96 (Jan.) 1950. **Partial Index**

The Premature Infant. R. W. B. Ellis.—p. 5.
General Management of the Newborn. G. A. Neligan.—p. 13.
Jaundice and Anaemia in the Newborn. D. MacCarthy.—p. 19.
Respiratory Infections of the Newborn. H. E. Jones.—p. 28.
Gastro-Enteritis in First Month of Life. G. Ormiston.—p. 35.

Acta Chirurgica Belgica, Brussels

48:521-596 (Nov.) 1949. **Partial Index**

Subvaterian Stenosis of Duodenum by Ulcer; Segmentary Resection of Duodenum. Gastroduodenojejunostomy. Case with Recovery. Surgical Considerations. E. Delannoy and C. Auguste.—p. 521.
Roentgenologic and Manometric Examination of Biliary Tract in Surgery. A. van Wien, J. J. Desneux and J. Van Geertruyden.—p. 527.
*Use of Nylon Tissue in Cure of So-Called Inoperable Eventrations. A. J. Michaux.—p. 564.

Nylon Tissue in Cure of Inoperable Eventrations.—Michaux used nylon tissue for the repair of the abdominal wall in 13 cases of primary or postoperative eventrations varying from 8 to 24 cm. in patients with a pronounced deficiency of aponeuroses and muscles. Five patients were in perfect health nine, eight, seven, seven, and six months after the operation. Two patients had a mild suppuration about the sixth postoperative day, which subsided spontaneously within ten days. The suppuration was of longer duration in 2 other patients, but it did not jeopardize the procedure. The results obtained with nylon tissue in "inoperable" cases of eventration, i. e., in patients in whom the muscular and aponeurotic tissues bordering the rupture cannot be made to unite, are encouraging because the nylon tissue is well tolerated and because it is easily applied. Occasionally it may not even be necessary to fix the prosthesis in place by sutures. Several nylon tissue prostheses may be used simultaneously.

Acta Paediatrica, Stockholm

37:195-358 (No. 3-4) 1949. **Partial Index**

*Penicillin Treatment of Carriers of Diphtheria Bacilli. G. Öberg.—p. 204.
Prophylactic and Early Treatment of Infections in Newborn Infants, Especially the Premature. G. Muhl.—p. 221.
Airborne Infections: IV. Control of Dustborne Streptococcal Infections in Children's Wards. G. Laurell.—p. 237.
Tuberculosis in BCG Vaccinated Children. O. Wasz-Höckert.—p. 261.
Dermatomyositis in Children. H. Sunde.—p. 287.
Significance of Chvostek's Symptom in Infants Under Two Years of Age. K. L. Möller and B. Söderling.—p. 318.
Parahemophilia, Hitherto Unknown Hemorrhagic Disease. E. Stransky and D. F. Dauis-Lawas.—p. 323.
Foreign Bodies in Esophagus with Symptoms Exclusively from Air Passages. H. F. Fabritius.—p. 335.

Penicillin Treatment of Carriers of Diphtheria Bacilli.—Öberg reports on 98 carriers of diphtheria bacilli who did not have clinical diphtheria or who had the actual illness at least six weeks previously. Eighty-seven were carriers of bacilli of the mitis type, 1 of the intermediate type and 10 of the gravis type. Fifty-one had virulent bacilli at the time of the institution of the treatment. Ninety-five carriers were given intramuscular injections of penicillin in varying doses. Eighty thousand to 200,000 units four times every twenty-four hours seems to be a suitable dose for adults. Treatment should be continued for a sufficient length of time so that at least three negative cultures in succession (taken every third day) may be obtained before treatment is discontinued. Positive cultures may appear some time after discontinuation of the treatment. At least four and in some instances five negative cultures in succession, taken every third day, should be obtained after treatment with penicillin before the patients may be discharged. Forty-two of 48 carriers with positive throat cultures and 19 of 50 carriers with positive nose cultures became free of bacilli. There seemed to be no difference in the treatment of carriers with virulent or nonvirulent bacilli. Penicillin aerosol treatment with inhalation of 10,000 units during a ten minute period three times daily was given a trial in 4 carriers. Two of these carriers were freed of the bacilli. This result is encouraging, since the carriers had shown resistance to treatment. The resistance was likely connected with chronic, atrophic rhinopharyngitis.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

93:4077-4144 (Dec. 3) 1949. **Partial Index**

Risks and Sequels of Fenestration Operation. L. B. W. Jongkees.—p. 4078.
Felty's Syndrome. G. A. Lindeboom.—p. 4085.
*Manipulations on Carotid Arteries as First Aid for Intracranial Hemorrhages Due to Trauma. W. R. H. Kranenburg.—p. 4093.

Manipulation of Carotid Arteries in First Aid for Cranial Trauma.—Kranenburg is concerned with the arrest of intracranial hemorrhages caused by contusions, which are a frequent occurrence in motor vehicle accidents. The prognosis in intracranial hemorrhage is in many cases largely dependent on the first aid received. Care should be taken that the injured person is kept as quiet and warm as possible, that the head is turned to the side and that stimulants are withheld. The manipulations described are concerned with the external carotid or the common carotid artery. Compression of the external carotid artery prevents further inflow of blood into the middle meningeal and other meningeal arteries of the same side. If the bleeding is cerebral, either arterial or venous, this manipulation is inadequate and pressure must be exerted on the common carotid artery. If this pressure is to be effective, the thumb must be placed on the neck artery and the bent thumb must be pressed downward along the neck and head so that the thumb does not slide sideward. The author stresses that the manipulations must be carried out during the "latent intervals," the time before the first symptoms appear, immediately after the accident. The pressure might be exerted by the patient himself or by the person giving first aid.

Nordisk Medicin, Stockholm

43:1-54 (Jan. 6) 1950. **Partial Index**

Aureomycin and Chloramphenicol. A. R. Frisk.—p. 1.
*Myth of Chromophobe Adenomas. Preliminary Report. N. Antoni.—p. 6.
*Aureomycin and Primary Atypical Pneumonia. R. Grelland.—p. 10.
Penicillin and Pneumonia. K. Motzfeldt.—p. 12.
Effect of Tetraethylammonium Bromide on Gastric Motility. B. C. Christensen, H. Skott and R. Bjerglund.—p. 13.
Coxa Saltans (Snapping Hip). G. W. Wallgren.—p. 18.
Injection of Contrast Medium in Colon by Use of Weber's Balloon. T. Rasmussen.—p. 20.

Myth of Chromophobe Adenomas: Preliminary Report.—In his examination of 10 so-called chromophobe adenomas, 2 as necropsy material, 8 as operative material, Antoni found that 8 were gliomas, corresponding most nearly to the Cushing-Bailey ependymomas. He is inclined to believe that the majority of suprasellar tumors connected with the hypophysis or its stalk, which have hitherto been considered chromophobe adenomas, are gliomas, particularly ependymomas, originating from the neurohypophysis or the hypophysial stalk; the assumption, if correct, affords a natural explanation of several obscure points regarding these tumors. Far oftener than do other hypophysial tumors, they develop out of the sella turcica and spread in the suprasellar region with the hypophysial stalk as a preformed pathway. Conceivably many of the tumors originate in the hypophysial stalk, with primary suprasellar development, and only secondarily penetrate into the sella turcica. Far oftener than do eosinophil tumors, they exert pressure on the optic chiasm and the tuber cinereum tract, causing defects in vision but slight or no enlargement or other roentgenologic changes in the sella turcica and no frontal niche. Hypopituitarism appears in only part of the cases, perhaps because of the difference in the size and topography of the tumors. Tumors developing from the neurohypophysis and hypophysial stalk were practically unknown.

Aureomycin and Primary Atypical Pneumonia.—Grelland says that primary atypical pneumonia is characterized by acute bronchiolitis and interstitial pneumonia. The leukocyte count is low or normal at the start of the disorder; later there may be considerable leukocytosis and, in a number of cases, eosinophilia. The frequency of positive cold agglutination has varied in different epidemics. In serious infections the patient may be confined for weeks with irregular fever, troublesome headache and cough and affected general condition. Recently it has been noted that severe pneumonias not infrequently lead to bronchiectasis and pulmonary fibrosis. Treatment with penicillin and sulfadiazine does not result in clinical or objective

improvement in uncomplicated cases. Aureomycin is an effective means of treatment of the disease. In 4 of the 5 cases reported, 3 of them severe, the cold agglutination titer was 256 or more. Treatment of the patients with penicillin and sulfonamide drugs before admission was without effect. After three days' treatment with aureomycin hydrochloride, ½ Gm. every six hours, all the patients were afebrile and recovery was rapid. Aureomycin treatment was equally effective in 6 severe additional cases with agglutination titers over 256.

Prensa Médica Argentina, Buenos Aires

36:2497-2554 (Dec. 2) 1949. **Partial Index**

*So-Called Lower Nephron Nephrosis. F. Morán Miranda.—p. 2523.

Lower Nephron Nephrosis.—According to Morán Miranda oliguria or anuria following traumatic shock is due to renal anoxia from ischemia, hypotension and hemoconcentration of shock. The syndrome develops in a functional and an organic phase. The organic phase consists in the persistence or aggravation of oliguria on the first day after the control of shock and the later appearance of isosthenuria, aciduria, albuminuria and cylindruria. In some cases moderate arterial hypertension appears on the third day. It is of great diagnostic value. There appear vomiting, thirst, hyperazotemia, dehydration, delirium and uremia. Uremic coma takes place within six or ten days after the onset of the disease. If the syndrome follows a favorable course, diuresis and elimination of catabolic substances increase and the urinary symptoms slowly regress for several months, with or without a recurrence. The syndrome is reversible with total recovery of function and anatomic restitution of the organic lesions. The preventive treatment of the organic phase is based on the prevention of renal ischemia with early control of shock by means of whole blood transfusions, and intravenous infusions of plasma, albumin, sodium chloride and dextrose solutions, or of a solution containing sodium chloride, sodium lactate and phosphates of calcium and potassium (Hartmann's solution). Persistence or aggravation of oliguria or anuria, after control of shock, calls for: (1) intravenous administration of sodium chloride solution, dextrose solution and sodium bicarbonate solution up to normalization of chlorides in the blood plasma and alkalinity of the blood. The quantity of liquids to be given is controlled by the increase or decrease of body weight. A daily dose of 18.5 Gm. of sodium bicarbonate is given by mouth until normalization of alkalinity of the urine is obtained. The patient is given a low protein diet. Renal decapsulation is indicated as an emergency measure. Recovery is slow, difficult and often complicated by a transient recurrence.

Schweizerische medizinische Wochenschrift, Basel

79:1255-1278 (Dec. 31) 1949. **Partial Index**

Pathogenesis and Therapy of Nonanemic and Slightly Anemic Iron Deficiency States. B. Jasiński.—p. 1255.
Determination of Grain Size of Silicogenous Dust. H. Gessner, J. R. Rüttner and H. Bühler.—p. 1258.
Nature of Injurious Effects of Cold. H. Killian.—p. 1262.
*Spindle Cell Sarcoma of Kidney Sixteen Years After Pyelography with Thorotrast. H. U. Zollinger.—p. 1266.
Chloramphenicol (Chloromycetin) in Treatment of Paratyphoid B: 2 Cases. A. Weintraub.—p. 1268.

Sarcoma of Kidney Sixteen Years after Pyelography.—Zollinger describes the case of a man who sixteen years previously, at the age of 48, had been subjected to retrograde pyelography with colloidal thorium dioxide. The pyelogram had revealed a hydronephrosis. A nephrectomy on the left side was recommended, but the patient refused it. During the intervening years the patient had had symptoms on the left side. In August 1949 he was again hospitalized. Pyelography again showed hydronephrosis and a shadow in the renal pelvis. Exploratory operation revealed a greatly enlarged kidney, the upper pole of which was adherent to the diaphragm. The renal pelvis was greatly enlarged and in its upper part grayish red tumor fragments were found. The tumors were connected with massive deposits of thorium dioxide. Histologic studies revealed a spindle cell sarcoma of the renal pelvis. When thorium dioxide was first introduced as a contrast medium for hepatolienography, arteriography and pyelography, several authors and the Council on Pharmacy and Chemistry of the American Medical Association warned of possible late complications, because of the radioactive character of the thorium. That these warnings were justified is proved by this case and a number of others. The author advises against the use of colloidal thorium dioxide as a contrast medium and believes that kidneys containing depots of thorium dioxide should be removed because of the danger of malignant lesions.

80:1-24 (Jan. 7) 1950. **Partial Index**

Types of Hemagglutinins in Infectious Mononucleosis and Serum Sickness. J. Tomcsik and H. Schwarzweiss.—p. 1.
*Pituitary Adrenocorticotropic Hormone: Thorn Test and Therapeutic Action in Chronic Inflammatory Polyarthritis. R. S. Mach, Y. Brügger, R. Della Santa and J. Fabre.—p. 5.
Diagnostic Significance of Plasmocytosis in Blood and Bone Marrow. G. Giraud and P. Cazal.—p. 12.
Role of Sympathetic Nervous System in Vasomotor Action of Nikethamide. E. Frommel and I. T. Beck.—p. 13.
Active Venous Hypertension. L. Condorelli.—p. 14.

Pituitary Adrenocorticotropic Hormone in Chronic Inflammatory Polyarthritis.—Mach and co-workers verified Thorn's test by injecting 25 mg. of pituitary adrenocorticotropic hormone (ACTH) in 7 normal subjects by the intramuscular route. The injection caused a pronounced fall of 80 to 100 per cent in circulating eosinophils and a rise in the urinary uric acid–creatinine ratio of 50 to 200 per cent. The fall in circulating eosinophils after the same injection was insignificant (0 to 40 per cent) in 5 patients with Addison's disease, and their urinary uric acid–creatinine ratio was increased by only 15 per cent. A single intramuscular injection of 25 mg. of pituitary adrenocorticotropic hormone was given to 12 patients with chronic inflammatory polyarthritis. It caused in 10 patients the same fall in circulating eosinophils as it did in the normal persons, but there was no rise in the urinary uric acid–creatinine ratio in the usual proportions. Subjective and objective improvement lasting for approximately forty-eight hours was produced in these 10 patients. The fact that the hormonal agent produces a fall in circulating eosinophils and at the same time a rapid clinical improvement indicates that the adrenal cortex is not the seat of the endocrine deficiency, if such a deficiency is present in chronic inflammatory polyarthritis. The seat of this deficiency may be in the hypophysis or the diencephalon. Two of the 12 patients with chronic inflammatory polyarthritis did not show any clinical improvement after the injection of pituitary adrenocorticotropic hormone, and they did not have any fall in circulating eosinophils. Prolonged treatment with daily injections of the drug was practiced on 2 patients with chronic inflammatory polyarthritis. For the first week the daily dose was 25 mg., and after that the daily maintenance dose was 6.25 mg. Complete change of the clinical state, the patient being able to walk without pain and having improvement of the blood sedimentation rate, resulted from this treatment and continued for many weeks after the discontinuation of therapy.

Zeitschrift für Kinderheilkunde, Heidelberg

67:137-260 (Oct. 24) 1949. **Partial Index**

Methionine: Its Physiologic and Clinical Significance. K. Schreier.—p. 137.
Protective Inoculation Against and Course of Scarlet Fever. F. Küster and M. Haase.—p. 173.
Adrenal Function Tests in Children. F. Souchon.—p. 179.
*Amino Acid Supplement in Feeding of Premature Infants. H. Henckel.—p. 221.

Amino Acid Supplement in Feeding of Premature Infants.—Henckel investigated the efficacy of the addition of a protein hydrolysate to the feedings given to 43 prematurely born infants. The infants weighed between 1,000 and 2,500 Gm. The protein hydrolysate contains all essential and some other amino acids in about the same proportion as they occur in the blood proteins. About 10 per cent phosphates are added for more effective buffering. The preparation is miscible with breast milk, 1 per cent of the preparation being generally added to the milk. It was found that, when weight curves obtained during feeding with this preparation were compared with those during periods when other preparations were given, the aforementioned protein hydrolysate proved definitely superior.

Book Notices

THE REVIEWS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES AND DO NOT REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED.

The Diabetic's Handbook: How to Work with Your Doctor; Treatment by Diet and Insulin. By Anthony M. Sindoni, Jr., M.D., Chief of the Department of Metabolism, Philadelphia General Hospital. Introduction by Rufus S. Reeves, B.S., M.D., Director of the Department of Public Health, Philadelphia. With a Foreword by Charles C. Wolferth, A.B., M.D., Professor of Medicine, School of Medicine, University of Pennsylvania, Philadelphia. Cloth. $3. Pp. 194, with 7 illustrations. The Ronald Press Company, 15 E. 26th St., New York 10, 1948.

Writing a primer for diabetic patients, if it is to be well done, is not as simple as one might believe. It must be kept in mind that the majority of diabetics come to the physician at the age of 40 to 60, when the troubled patient is no longer in the mood for learning things that are strange or new. This calls for the simplest possible mode of expression consistent with the facts. This handbook meets that situation with the quiz method in section 1. How much of the field one covers and how much detail one can transmit in that fashion depend on the selection and arrangement of the questions.

The background, clinical history and manifestations of diabetes and complications are briefly and clearly stated, and the author avoids speaking over the head of the patient. How much to say and what not to say to the patient in a book for this purpose depend on good judgment. The food section is well arranged, and its contents are easily accessible. Special mention should be made of the selection of recipes and their food values, which patients find helpful in many ways. This book can be recommended to patients without reserve.

Wollen und Schaffen: Lebenserinnerungen aus einer Wendezeit der Heilkunde, 1868-1932. [Bd. I.] Von Erich Hoffmann. Half Cloth. Pp. 493, with 2 illustrations. Schmorl & von Seefeld Nachf., Verlagsbuchhandlung, Hanover, 1948.

Ringen um Vollendung: Lebenserinnerungen aus einer Wendezeit der Heilkunde, 1933-1946. [Bd. II.] Von Erich Hoffmann. Half-Cloth. 12 marks. Pp. 309. Schmorl & von Seefeld Nachf., Verlagsbuchhandlung, Georgstrasse 45, (20a) Hannover, 1949.

These two volumes are an autobiography extending from 1868 to the present; they constitute, therefore, an unusual panorama of history in general as well as of medical developments in particular, delineated by a writer whose education, gifts and contacts were extraordinarily broad. Highlights in the first volume are the description of his work with Fritz Schaudinn that led to the demonstration of the Treponema pallidum as the causative organism of syphilis and the account of his first visit to the United States. The second volume contains further instructive details of scientific investigations, a delightful account of a second visit to the United States and a gripping portrayal of the confusion that preceded and the horrors that followed the outbreak of World War II. The book will give pleasure to many American readers because of its friendly portrayal of characters well known in dermatology today, but, in addition, it must be recognized as the expression of a great personality and a priceless contribution to the history of dermatology and chemotherapy.

How to Befriend Laboratory Animals. By Charles W. Hume. Paper. 2d. Pp. 16. UFAW (Universities Federation for Animal Welfare) 284 Regmt's Park Road, Finchley, London, N. 3., 1949.

This excellent pamphlet discusses the origin of vivisection among the French scientists and veterinarians and gives the historical background of the cruelty to animals act (1876). He further indicates that the act in Britain was amended in 1906 by a bill called the Dogs Act, which prohibits in Britain the use of stray dogs for vivisection, but the effect of that law is that dogs must be bought from dealers and the resulting high prices tempt thieves to deprive dogs of their homes. One effect of this legislation is indicated by the fact that no antivivisection bill has ever reached second reading in either house since 1881. This pamphlet should be read by all who are told by the antivivisectionists that experimentation on dogs is not allowed in Great Britain.

Functional Human Anatomy: An Introduction into the Fabric of the Human Body. By Cleveland S. Simkins, A.B., Ph.D., Professor of Anatomy, Creighton School of Medicine, Omaha, Nebraska. Cloth. $12. Pp. 593, with 238 illustrations. Wm. C. Brown Company, 915 Main St., Dubuque, Iowa, 1949.

There seems to be a widespread feeling in medical circles that the teaching of gross anatomy is no longer adequate for the needs of medical students. Efforts are being made in several medical schools to integrate the teaching of gross anatomy with other sciences and with clinical and biologic fields. One of the serious obstacles to modernization of the subject has been the persistence of textbooks which do not differ basically from editions dating back a half-century or more. It would seem that the time has come for the appearance of more bona fide textbooks of anatomy, in contrast with the present massive books (and their spawn, dissecting manuals) which students are commonly required to wade through and which may be characterized more properly as reference books.

The present book is one example, and a very good one, of the directions that the teaching of anatomy is beginning to take. It is lucid and dynamic and deals frequently with morphogenetic, physiologic and pathologic aspects of human anatomy. It consists of an introduction and six other sections (upper extremity, head and neck, thorax, abdomen, pelvis and lower extremity). A large part of each section is devoted to more general aspects and remaining portions to more detailed descriptions of smaller units and their function and relations. While the space devoted to the extremities is still too great, it is gratifying to see that the discussion of the thorax and abdomen, with their great importance for medical practitioners and biologists, is relatively greater than in most textbooks. It is hoped that in future editions further integration might be made with microscopic anatomy and the principles of comparative anatomy, that the number of simple line drawings will be increased and that more references will be cited. The small type script is not too legible. There are a number of instances where revision of the text would lead to a clearer and shorter exposition. The book is deserving of a wide trial, and these suggestions need not deter students or teachers from the use of what is a commendable effort to revise the teaching of anatomy to meet present needs of students.

The Physiology of Thought: A Functional Study of the Human Mind in Action. By Harold Bailey, M.D., F.A.C.S. Cloth. $3.75. Pp. 314. The William-Frederick Press, 313 W. 35th St., New York 1, 1949.

The author of this book informs the reader in the preface that "when we," the "we" apparently referring to the person of the author, "began to study thought, it never occurred to us that the subject could become as comprehensive as our investigations have shown it to be." Again, the author states, "In so far as possible we shall limit the text to a consideration of our own ideas, and we shall devote little space to discussion of views expressed by other writers." The program is largely lived-up to, for the reader would in vain look for such names as Sechenov, Pavlov, Hughlings Jackson or Walter B. Cannon. The reader, however, will be disappointed if he should attempt to discover a "theory." Rather, he will find definitions and not an attempt to explain the modus operandi of such phenomena as sleep, dreams, consciousness, instinct and perversion.

Among some of the conclusions arrived at by the author are: "We have been unable to attach any value or significance to dreams, save as an indication of the depth and degree of unconsciousness present." Pavlov's theory of retardation and inhibition is not mentioned, and Freud's interpretation is dismissed in three lines. According to the author, "The influence of thought on our emotions will largely depend upon the nature of the subject about which we are thinking. We regard emotions as physical reactions or disturbances which result from an imbalance of thought." The subject of emotion is dismissed as follows: "The adverse influence of emotion upon the health of the individual needs but to be recognized in order to be avoided."

Popularization of so complicated and difficult subject as physiology of thought constitutes a difficult problem even for one who has worked in this field and has mastered the subject. For others it is an overwhelming project.

Extrapleural Pneumolyse. By Knud Buhl. With an English Summary. Denne afhandling er af det lægevidenskabelige Fakultet ved Københavns Universitet antaget til offentlig at forsvares for den medicinske Doktorgrad, 1948. Paper. Pp. 202, with 31 illustrations. Rosenkilde & Bagger, Copenhagen, 1948.

The author surveys the literature concerning apicolysis, with and without thoracoplasty and with reference to the material (air, oil, paraffin) used in the space created at operation. He then reviews the 351 operations on 321 patients mostly performed by Gravesen at Vejlefjord Sanatorium and a few by Rischel at Avnstrup Sanatorium. Results are decisively influenced by the extent and severity of the disease, classified as (1) unilateral or early bilateral, (2) bilateral moderate, (3) bilateral advanced (in these 3 without attempt to collapse the other side) and (4) bilateral cavernous, in which collapse was present or attempted on the other side. Most patients were followed for at least three years.

In 87 plombage operations, 60 per cent of the patients in class 1 and 6 per cent in the remaining classes recovered. There were a number of severe operative and postoperative complications. Thoracoplasty with apicolysis without maintenance of the pneumolysis space was performed in 151. Late recovery occurred in 51 per cent in classes 1 and 2 and in 20 per cent in classes 3 and 4. Complications were few. In 36 cases of extrapleural pneumolysis in which it was planned that the space be maintained at first with pneumothorax and then by oleothorax, in 23 a permanent oleothorax collapse was achieved. Among the oleothorax cases 67 per cent of the patients in classes 1 and 2 recovered and 18 per cent in classes 3 and 4. Results are better when the apicolysis is combined with apical thoracoplasty. In this group of 59 cases permanent extrafascial oleothorax was obtained in 40 cases. Recovery occurred in 64 per cent of classes 1 and 2 and in 42 per cent in classes 3 and 4. Complications were less frequent when the pneumolysis operation was combined with apical thoracoplasty. Thoracoplasty with apicolysis gives no better results than simple thoracoplasty. Results with apical thoracoplasty combined with extrafascial oleothorax are encouraging.

Précis de parasitologie. Par E. Brumpt. Vols. I et II. Sixth edition. Cloth. 7700 francs. Pp. 1042; 1045-2138, with 1312 illustrations. Masson et Cie, 120 Boulevard Saint-Germain, Paris VIe, 1949.

A relatively long time in modern medical history has elapsed since the fifth edition of this justly renowned book was published, in 1936. Within that period parasitology has been broadened and deepened in fundamental and applied knowledge, particularly in its assimilation of biochemistry, physiology, experimental pharmacology and immunology. Thus, any new textbook on parasitology or a new edition is expected to reflect these many advances.

Those who are familiar with the earlier editions understand how thoroughly the entire subject was covered, frequently to the smallest detail. This edition is truly encyclopedic in breadth and minutiae. As in the fifth edition, so in this one, volume I presents in orderly sequence, first, an introduction covering the general phenomena of parasitism (87 pages), followed by a section on the protozoa (485 pages), in which are included the pathogenic spirochetes as well as amebas, flagellates, sporozoans and ciliates. The remainder of this volume (467 pages) is devoted to the flatworms (trematodes and tapeworms) and the roundworms. Volume II opens with a short chapter on leeches, followed by the arthropods and the diseases which they transmit (549 pages), then a section entitled "Systematic Study of the Parasitic Fungi and the Mycoses" (422 pages) and an addendum (24 pages) containing a digest of the more important information published between 1946 and early 1949. A good subject index and a table of contents conclude the work.

The detail and care which the author has exercised in presenting his material, including an almost exhaustive description of many species of parasites which have only remote or incidental relationship to human disease, are impressive. Yet one must remember that this book is not intended as a treatise exclusively devoted to human parasitology. In considering the text from the viewpoint of the medical parasitologist, the mycologist and the pathologist, one finds the classification of causative agents for the most part satisfactory, and the coverage is excellent up to about 1940, with less abundant information from that year until the date of publication. From the point of view of the physician, the material on symptomatology is relatively complete, and in most instances modern diagnostic technics are adequately described. Consideration of chemotherapy is deficient in that several modern drugs are not included, those which are listed are not critically evaluated, and too frequently the dangers and contraindications of the more toxic drugs are not mentioned. The public health aspects of parasitic diseases are well presented with reference to geographic distribution and epidemiology, but less satisfactorily as regards control. The volumes are beautifully printed on an excellent quality of paper, are abundantly illustrated with good photographs and detailed drawings and are substantially bound.

Resuscitation and Anesthesia for Wounded Men: The Management of Traumatic Shock. By Henry K. Beecher, A.M., M.D., Henry I. Dorr Professor of Research in Anesthesia, Harvard University, Boston. Cloth. $5.50. Pp. 161, with 28 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1949.

This small volume, with its excellent format, consists of a compilation of 10 published articles written by the author during his period as consultant in resuscitation and anesthesia in the Mediterranean Theater of Operations during the last World War. Emphasis is placed on the patient's care during the critical period between the time the enemy's missile strikes until the surgeon repairs the wound. Although the background of this book is wholly military, the fundamental principles involved are the same as those that apply to the care of traumatic injuries in civil practice.

This book is divided into four sections which deal with the mental and physical state of wounded men; physiologic derangements in the wounded found on forward hospital admission; treatment of wounded men, and anesthesia for the wounded. A comprehensive index is included. Differences in the care of the wounded during World War I and World War II are revealed, as well as improvements in medical management during various years of the last World War. Valuable discussions deal with the role of pain in the wounded man and appraisal of the patient's condition, including degree of shock.

The section on physiologic derangements in the wounded contains a most important summary of studies on the effects of various types and locations of wounds on blood loss, degree of shock, hematocrit and plasma protein levels, nonprotein nitrogen blood level and other chemical changes. Adequate evidence is presented to show that the internal state of wounded persons undergoes profound alterations. Of particular importance in the section dealing with treatment of wounded men is the discussion dealing with the use of morphine, especially the hazard of delayed morphine poisoning. This latter factor must be given greater emphasis in medical school and hospital instruction, as well as in civilian medical practice.

Organization and management of field, batallion aid stations, collecting company, clearing station and shock wards, in relation to the treatment of wounds, fluid and blood replacement, oxygen therapy and artificial respiration, are all discussed in a concise manner. The section dealing with anesthesia for the wounded consists of only 18 pages and emphasizes that the anesthetic agents and technics necessarily employed in the combat zone are much more limited than in civilian hospital practice. The preparation of patients for anesthesia and characteristics of the various anesthetic agents are discussed. Regional block usually had little usage because of the frequent multiplicity of wounds in a given person. The limitations of thiopental sodium in the treatment of the wounded are clearly defined, and later experience on this basis was shown by the author to have greatly reduced the anesthetic death rate from this drug. Physicians, particularly surgeons and anesthesiologists, who deal with the care of the wounded will find this small volume valuable.

Electron Microscopy: Technique and Applications. By Ralph W. G. Wyckoff. Cloth. $5. Pp. 248, with 202 illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3; Interscience Publishers Ltd., 2a Southampton Row, London W.C. 1, 1949.

This book is essentially an electron microscopist's *vade mecum*, written by a master craftsman in the fine art of electron microscopy. Its primary preoccupation is with instrumentation, technical procedure and the myriad areas of application which have already emerged in this teen-aged craft of the visualization of ultramicroscopic structure. The illustrations are rich, varied and technically superb; they are undoubtedly the finest collection of pictures that have thus far been published to exhibit the applications of electron microscopy. The book is a highly individualized account of the wide experience of the author and his laboratory. As such it has the freshness and authenticity of personal experience; it suffers for the same reason from the limitations of the author's personal preferences and from inadequate assimilation and presentation of the work of other investigators of the biophysics and biochemistry of ultrastructure.

Successive chapters describe electron microscopes themselves; adjustment and operation; preparative procedures for (*a*) particle suspensions, (*b*) thin sections, (*c*) membranes and surface films, (*d*) surface replicas, (*e*) positive replicas and (*f*) atomic replicas; metal shadowing and the visualization of very small objects; the use of surface replicas; the electron microscopy of particle suspensions, including bacteria and rickettsiae; the electron microscopy of viruses; the photography of macromolecules, and the structure of macromolecular solids. The bibliography is comprehensive and is organized under topics so as to be readily usable.

Dr. Wyckoff is primarily a crystallographer and secondarily a biophysicist in the field of microbiology. As might be expected, therefore, the chapters dealing with viruses and macromolecules and the structure of macromolecular arrays are, among those on applications, of greatest value.

Those who are familiar with the extensive literature on the biochemistry and genetics of bacteriophage reproduction will find somewhat naive the author's conclusions, drawn with cavalier disregard of the literature and out of harmony with well documented results of other investigators. An example of what may be limitation by personal preference is the fact that not a single electron micrograph of an unshadowed preparation is to be found in the book. Dr. Wyckoff is one of the originators of the technic of shadowing which has contributed enormously to electron microscopy and is shown in the present volume to be capable of contributing substantially in light microscopy as well. Where fine graduation of contrast in internal structure is desired, however, as in studying the internal organization of bacteria or the details within thin sections, metal shadowing may obscure more detail than it reveals. Those interested in exploration of the fine-scale physical constitution of living matter, and of nonliving matter as well, will find Dr. Wyckoff's book exciting and challenging reading, with a wide outlook to the future.

Essays on Sex. By Henry McClure Young, M.D. Edited by Maud H. Young. Cloth. $5. Pp. 277, with 1 illustration. The Christopher Publishing House, 1140 Columbus Ave., Boston 20, 1949.

These essays were written over a quarter of a century for physicians reading *Urological and Cutaneous Review*. They are not dated, and they bear little relation to each other. It is a book for physicians and of little value to the general reader wanting information concerning the subject matter. Physicians remembering the distinguished author will find it interesting; other persons will find it an expensive book not suited for general reading along the lines indicated by the title.

Goethe and Pharmacy. By George Urdang, Ph.G., D.Sc. Nat., Sc.D. Paper. Price, $2.50. Pp. 76, with 22 illustrations. American Institute of the History of Pharmacy, Inc., Pharmaceutical Library, Chemistry Building, Madison 6, Wis., 1949.

The author has presented an interesting historical review of Goethe's intimate contacts with pharmacists of his locale. While it is true that Goethe concerned himself with the problem of directing men's minds toward the elevation of their practices, it is equally clear that his elementary knowledge of the action of drugs and chemicals was enhanced by these contacts.

Congenital Anomalies of the Heart and Great Vessels: Clinicopathologic Study of 132 Cases. By Thomas J. Dry, and others. Publication No. 47, American Lecture Series, A Monograph in American Lectures in Pathology, edited by Paul R. Cannon, M.D., Profesor of Pathology, University of Chicago School of Medicine, Chicago, Ill. Cloth. $4.50. Pp. 68, with 80 illustrations. [Postgraduate Medicine, 512 Essex Bldg., Minneapolis 2, 1948]; Reproduced with Permission by Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., [1949].

This modest volume is a clinicopathologic correlation of sixteen distinct congenital anomalies of the heart and great vessels based on a study of 132 necropsies at the Mayo Clinic. The format is attractive, the quality of the paper good and the colored reproductions of heart models excellent. The roentgenograms, photographs of autopsy material and electrocardiograms are also well reproduced. The portraits included in this book of eminent pioneers in the field of congenital heart disease impart a delightful flavor of continuity with the past.

Unfortunately, several anomalies of importance are not included. These include anomalies of the great veins (e. g., persistent left superior vena cava, aberrant pulmonary veins), isolated pulmonary stenosis, subaortic stenosis and aberrant coronary arteries. In all but 1 case only roentgenograms in the posteroanterior view are shown. The importance of the left anterior oblique view, especially in the diagnosis of rudimentary right ventricle, is not mentioned. The value of cardiac fluoroscopy is implied but not emphasized. The authors perpetuate the "sin" of assigning to the pulmonary conus a place on the cardiac silhouette, although it has been demonstrated repeatedly by angiocardiography that, under normal and abnormal conditions, the conus remains intracardiac and does not make up the heart border.

Information available from catheterization is only lightly touched on; this deficiency is not compensated for in the list of references. Angiocardiography as a diagnostic tool is not mentioned in the text. The value of the electrocardiogram is sharply limited as a diagnostic and correlative tool because exploration has been confined largely to the standard limb leads. This book will provide a pleasant pictorial experience for those whose interest in congenital heart disease is casual or will serve as a graphic supplement to more extensive works concerned with this field.

Secretory Mechanism of the Digestive Glands. By B. P. Babkin, M.D., D.Sc., LL.D. Second edition. Cloth. $20. Pp. 1027, with 233 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33d. St., New York 16, 1950.

The first edition of this book, which appeared in 1944, has been warmly received and extensively used by physiologists and clinical investigators whose principal field of interest is the secretory activities of the digestive glands. Until its appearance the standard reference work in this field had been Babkin's earlier cyclopedic work, "Die Äussere Sekretion der Verdauungsdrüsen" (Berlin, Julius Springer, 1928). Unlike this earlier German work Babkin has not claimed for the present volume completeness of coverage of the literature. Instead he has attempted to present systematically the products of the research of his own laboratories, using literature references to the work of others only to supply the necessary background. Despite this professed modest aim, the book is, in fact, a complete survey of the literature on the subjects of salivary, gastric and pancreatic secretion and is much depended on for this purpose because no other modern book covers these subjects in the exhaustive manner required by the researcher. Intestinal and biliary secretion are only touched. The pathologic physiology of gastrointestinal disease is given only cursory attention. Babkin writes lucidly, and one finds oneself browsing in the book beyond the subject originally being looked up.

This new edition adds some 260 bibliographic references, bringing the total to nearly 2,000. It would appear that in some instances the new material has been "tacked on" without adequate integration with the old. This adds to the impression of discursiveness which one sometimes got in reading certain sections of the first edition. As in the first edition, the type is large and clear and complete author and subject indexes are provided, adding greatly to the usefulness of a book of this kind. Unfortunately, the high cost of the book will prevent it from coming into the hands of many graduate students who should own it.

Manuel de radiodiagnostic clinique. Par R. Ledoux-Lebard, Chargé de Cours de radiologie clinique à la Faculté de médicine de Paris, et Guy-R. Ledoux-Lebard. Second edition. Cloth. 5500 francs. Pp. 1407, with 2000 illustrations. Masson et C^ie^, 120 Boulevard Saint-Germain, Paris VI^e^, 1949.

The senior author, Rene Ledoux-Lebard, died in 1948. Probably no French radiologist has been more popular with American colleagues. The senior Beclere was always most gracious and hospitable, but he did not speak English easily as did Rene Ledoux-Lebard. Rene gave the Caldwell Lecture on high voltage roentgen therapy at the 1922 meeting of the American Roentgen Ray Society. During the First World War he was a great help in the adaptation of American radiologists to the customs, available apparatus and methods of locating foreign bodies.

The field of diagnostic roentgenology is covered. Much of this edition has been rewritten, and there are far more illustrations than in the first edition, published five years ago. There is no similar single volume work on diagnostic roentgenology in the English language, and only Schinz of Switzerland has approached it in the German language. Ross Golden's "System of Roentgenology," in two volumes with many authors, is the best product in the English language and compares well with this volume. The wealth of illustrations and the anatomic and pathologic sketches serve to confirm the diagnostic interpretations, particularly in bronchial and genitourinary examinations with opaque mediums and the chapters on cardiology and arteriography. Rene Ledoux-Lebard was always the perfectionist, and this fine volume, in which have been included every old and new phase of roentgen diagnosis, offers many examples of his attention to detail. The Ledoux-Lebards, the late Rene and his son, Guy, are to be complimented on this fine exposition of modern French diagnostic roentgenology.

Diseases of Women. By Ten Teachers, under the Direction of Clifford White, M.D., B.S., F.R.C.P. Edited by Clifford White, Frank Cook and Sir William Gilliatt. Eighth edition. Cloth, $5.25. Pp. 461, with 170 illustrations. The Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, 1949.

The list of contributors to this compact book is noteworthy, but that has been so from its inception, under the guidance of the late Sir Comyns Berkeley. That the opinions of ten authorities on overlapping subjects could be condensed into 461 pages without undue repetition or noticeable lack of unanimity demonstrates the editorial efficiency of Clifford White. There is continuity throughout the 44 chapters, each section an important monographic contribution, that is remarkable considering the multiple authorship.

The book is thoroughly up to date in thought and precept, although it is noticeable that penicillin is the most recent antibiotic prescribed. Also, nonabsorbable iodized oil is recommended exclusively for hysterosalpingography, whereas in this country absorbable opaque mediums are being more and more preferred. There seems to be rather too great a determination that obstetrics shall be no part of gynecology, although constant reference is made to pregnancy as a complicating factor in various gynecologic conditions. Ectopic pregnancy is given an entire chapter.

The book is essentially one for diagnosis and for reference. Every conceivable gynecologic condition seems to be referred to and discussed, concisely but thoroughly. Treatment is outlined, but technics of operative procedures with illustrations are subordinated to no more than 40 pages. In general the illustrations are excellent. The book is to be recommended to students, to general practitioners and to specialists in obstetrics-gynecology as an excellent and definitely authoritative reference work.

A Descriptive Atlas of Radiographs: An Aid to Modern Clinical Methods. By A. P. Bertwistle, M.B., Ch.B., F.R.C.S.Ed. Seventh edition. Cloth. $16. Pp. 622, with 980 illustrations The C. V Mosby Company, 3207 Washington Blvd., St. Louis 3, 1949.

Despite the dedication of this edition to the Right Honorable Winston Churchill, O. M., and the addition of brief sections on helminthology and occupational diseases, this work remains a mediocre and not reliable collection of radiographic reproductions. Many of these reproductions are confused by the outlining of the "silhouette" of the part under examination. Inasmuch as the reproductions themselves are mostly positives, this merely adds confusion.

There are chapters on normal bones, anomalies, fractures, diseases of bones, tumors of bone and injuries and diseases of joints. The alimentary, urinary, respiratory, nervous and vascular systems are dealt with. The work is essentially an attempt at an atlas of radiograms. There is an interesting supplement in the form of an attempted history of radiographic diagnosis, culled by the author from portions of "The Archives of the Roentgen Ray" and "The Year Book of Radiology." This section has been particularly poorly prepared or proofread. Misspelled surnames abound (for example, Hadek for Haudek; Rugler for Rigler), as do misspelled technical terms (ventrilography appears three times; atalectasis more than once).

The author has some gross misstatements, which should be corrected. For example, on page 15, ". . . Ewing's tumor which is so radiosensitive that operation is uncalled for." On page 16, ". . . spondylitis adolesans, an affection of the sacroiliac joint amenable to x-ray therapy." He refers to Milkman's syndrome as a rarefying osteitis usually found in women at or beyond the menopause; Milkman referred to it as spontaneous idiopathic symmetric fractures. In the history of the development of radiology of the alimentary tract, he fails to mention Cole's important contributions to duodenal ulcer between 1913 and 1914. Many of the illustrations are made from old roentgenograms. The book may therefore have some historic interest. However, it cannot be recommended as a modern textbook.

Your Child's Mind and Body: A Practical Guide for Parents. By Flanders Dunbar, M.D. Cloth. Price, $2.95. Pp. 324. Random House, Inc., 457 Madison Ave., New York 22; Random House of Canada, Ltd., Toronto, 1949.

This book keeps the promise of its subtitle so well that it can be recommended without reservation by practicing physicians to all who ask for advice about their children. It has a conversational tone and is written in the language of the layman. This book answers all the questions which parents might ask, simultaneously explains the behavior of children and gives sound advice. This volume contains nine chapters, each of which is carefully summarized, and all the important statements are printed in italics. From this it may be seen that the book is truly written for the benefit of the reader and that it is so organized that the answers to specific questions are easily accessible. The volume is enhanced by a table of reference by age, a bibliography and a 26 page index. The eminent author has done her best in this volume, both from the point of view of her scientific knowledge of dynamic psychology and her success as a parent. Her book is destined to remain as a classic in the field of parent-child relationships.

Dental Roentgenology. By LeRoy M. Ennis, D.D.S., Professor of Roentgenology in the Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania. Fourth edition. Cloth. $10. Pp. 538, with 1207 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1949.

This book is essentially for the dentist and technician. Little clinical dentistry is discussed. It is full of reproductions of dental films and the discussion of apparent disease is profuse. There is just a two page item on osteoradionecrosis with quotations from two 1938 articles and the tumor pages are limited to the benign conditions. There is not any mention of cancer or focal infection even in the index. Physicians who take their own dental films will find this book useful.

Medicinske Fremskridt. Redigeret af Leiv Kreyberg, Erik Warburg, Helge B. Wulff, S. Felgenberg. [Medical Progress]. Paper. Pp. 422, with illustrations. J. H. Schultz Forlag, Niels Juelsgade 10, Copenhagen K.; C. W. K. Gleerups Förlag, Lund; H. Aschehoug & Co., Oslo, 1949.

This is an excellent review and summary of recent advances in medicine, from isotopes and cancer to chest surgery and psychiatry. Twenty-six specialists present the reviews of that number of important topics. Each chapter lists the important recent literature in its field. The book is prepared for the medical student and the general practitioner. As such it is a further indication of the high level of medical education and medical service in these Scandinavian countries.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

OXYGEN AND ALCOHOLIC INTOXICATION

To the Editor:—**Is oxygen inhalation effective in counteracting acute alcoholic intoxication?**

F. W. Kinard, M.D., S. C.

ANSWER.—The rationale of oxygen therapy in the treatment of acute alcoholic intoxication is the observation that anoxia simulates alcoholic intoxication. Probably the most dramatic symptoms of intoxication occur in aviators at high altitudes. Many a flier has felt that altitude had no effect on him, while observers using oxygen noted obvious euphoria, irresponsibility, incoordination and, finally, unconsciousness. McFarland and Barach (*Am. J. M. Sc.* **192**:186, 1936) reported that the "inhalation of 50 per cent oxygen with an increased percentage of carbon dioxide for two hours lowered the alcohol and lactic acid contents of venous blood in subjects who had ingested a known amount of alcohol per kilogram of body weight; this was accompanied with a corresponding improvement in mental and motor behavior." Robinson and Selesnick (J. A. M. A. 105:1734 [Nov. 30] 1935) reported a sharp reduction of alcoholic concentration in venous blood after the inhalation of 90 per cent oxygen with 10 per cent carbon dioxide for half an hour. David and Robertson (*Quart. J. Stud. on Alcohol* 10:59, 1949) in a study of 100 cases report striking improvement of symptoms of acute alcoholic intoxication not hitherto experienced with other methods of treatment.

ABANDON DINITROPHENOL AS REDUCING AGENT

To the Editor:—**What new research has been done with alpha dinitrophenol in the treatment of obesity? Is it still thought to be a causative factor in cataract formation?**

M.D., Michigan.

ANSWER.—Dinitrophenol has been abandoned for use in weight reduction and for any other medicinal purpose. The Federal Food and Drug Administration announced several years ago that in its opinion interstate shipments of dinitrophenol intended for medicinal purposes would violate the dangerous drug provisions of the Federal Food, Drug and Cosmetic Acts. Many states have outlawed the sale of dinitrophenol for medicinal purposes.

Robbins (*J. Pharmacol. & Exper. Therap.* **80**:264, 1944; **82**:301, 1944) successfully produced experimental cataracts in chickens by administering dinitrophenol. Horner (*Arch. Opth.* 27:1097, 1942) reviewed the evidence regarding cataract production in the human. There seems to be no doubt about the relationship between dinitrophenol administration and cataract formation. There are no pharmaceutic preparations of dinitrophenol available, and its use in any form for the treatment of obesity or any other condition is dangerous and wholly unwarranted.

POSSIBLE PSEUDOECTOTHRIX

To the Editor:—**Are there any records of cases of "fungous infection" of the scalp other than ringworm of textbook description? My co-workers and I have been consulted by an adult woman with small lesions and marked loss of hair which have baffled the clinicians and laboratory. We have repeatedly failed to obtain a growth on Sabouraud's medium at room temperature; yet the microscopic picture cannot be ignored. There is no resemblance to either endothrix or ectothrix as usually encountered with hydroxide wet mounts. There appear to be "filaments" of a sort wrapped around the hair, beginning at the root and extending some distance up the shaft. There seems to be branching, which gives a "briar-stitch" or crisscross effect where the "filaments" are present.**

M.D., Virginia.

ANSWER.—The condition might be an example of pseudoectothrix described by Knowles and his co-workers (*Arch. Dermat. & Syph.* **31**: 38 [Jan.] 1945). Knowles and his colleagues called attention to threadlike filaments that were wrapped around hairs taken from scalps affected with inflammatory diseases. They were not fungi, nor was their character clearly established. The authors suggested that they were of the nature of an intercellular exudate thrown out by the internal epithelial sheath as a result of the inflammatory process. Most of their examples were from lesions of neurodermatitis, but it was implied that similar filaments might be observed as a result of other inflammatory diseases.

PREOPERATIVE TESTS OF HEPATIC FUNCTION

To the Editor:—**Best and Taylor in "Physiological Basis of Medical Practice" (Williams & Wilkins Company, 1945, page 470) cite observations by McMaster and Rous and by Mann and associates relative to the reserve function of the liver. The first group showed that in the dog 95 per cent of the excretory function could be abolished before jaundice appeared. The second group found that liver tissue of the dog could be reduced by 80 per cent or more without occurrence of a fall in urea production. Would these findings hold in principle for humans? If so, what is the value of preoperative tests of hepatic function in any patient other than one with extensive liver damage?**

O. C. Amstutz, M.D., Bellefontaine, Ohio.

ANSWER.—The results of tests of hepatic function in healthy animals the livers of which have been partially extirpated are not to be compared with the results of similar tests in patients in whom the hepatic disease is diffuse. In experimental animals the liver remaining after partial extirpation is presumed to be normal in function, while in the patient with diffuse hepatic disease it is probable that all the hepatic cells are involved in some degree. Results of liver biopsy in patients with hepatic disease emphasize the difficulty in correlation of histologic alterations, results of tests of hepatic function and signs and symptoms of disease. It is known that certain patients with advanced hepatic cirrhosis, in whom considerable regeneration of hepatic parenchyma has occurred, may have normal or almost normal results of many tests of function. In contrast, other patients with chronic hepatitis may have readily demonstrable impairment of hepatic function (particularly as manifested by abnormal retention of sulfobromophthalein sodium in the blood) in the presence of little apparent histologic alteration except mild periportal cellular infiltration. The need for other technics of staining cells and better tests of function is apparent. However, even though it is difficult to correlate the amount of hepatic damage and the results of tests of function, it is appropriate and important to determine hepatic function preoperatively in any patient suspected of having hepatic disease. Cantarow (*Arch. Int. Med.* **54**:540, 1934) emphasized the value of preoperative determination of the amount of retention of sulfobromophthalein sodium in the blood of nonjaundiced patients with calculous and noncalculous cholecystitis. He pointed out that the dysfunction manifested by abnormal retention of dye in such patients is often readily corrected by proper preoperative care, with ultimate benefit to the patient.

LARGE DOSES OF VITAMIN A

To the Editor:—**1. Could a daily intake of 300,000 units of vitamin A by an adolescent or young adult for six months or more be harmful? 2. What is the "toxic" dose?**

M.D., New York.

ANSWER.—1. A daily intake of 300,000 international units of vitamin A by an adolescent or young adult male for six months or more would probably not be harmful.

2. Acute intoxication by vitamin A is suggested by the report of Rodahl and Moore (The Vitamin A Content and Toxicity of Bear and Seal Liver, *Biochem. J.* **37**:166, 1943). Eskimos have long known that the ingestion of polar bear liver may cause severe illness. The first signs occur in two to four hours, sometimes later—drowsiness, sluggishness, severe headache and vomiting. In twenty-four hours, the skin about the mouth begins to peel off; there may be loss in other areas or, occasionally, over the entire body. Recovery usually occurs. Rodahl and Moore found that the toxic polar bear livers contained from 13,000 to 18,000 international units of vitamin A per gram and, in experiments with the white rat, that vitamin A was the sole toxic agent in the livers. They estimated that the quantity of vitamin A in 375 Gm. of liver (the amount ingested) was about 7,500,000 units.

Chronic intoxication by vitamin A in children was first reported by Josephs (Hypervitaminosis and Carotenemia, *Am. J. Dis. Child.* **67**:33, 1944). A boy had received, from the age of 2 or 3 months, 1 teaspoonful or more of halibut liver oil daily—at least 240,000 international units of vitamin A. By 18 months, his appetite failed; at 28 months the liver and spleen were enlarged, the fingers were clubbed and the hair was dry, coarse and falling. Roentgenograms showed an irregular cortex in phalanges and metacarpals, vacuolated medullary cavities, mottled epiphyses at the upper end of the humeri and tibias and advanced bone age. The serum vitamin A was greatly elevated. After the discontinuance of halibut liver oil, improvement was immediate. In two months the appetite improved, weight increased and hair began to grow. At 30 months the liver and spleen were still enlarged and the fingers were clubbed. Josephs reports observation on 3 other children, who ingested from 120,000 to 500,000 international units of

vitamin A daily for several weeks to four months, who had no symptoms. The levels of serum vitamin A were not greatly elevated.

The observations of Josephs and of Toomey and Morissette (Hypervitaminosis A, *Am. J. Dis. Child.* 73:473, 1947) appear to show that infants may tolerate daily doses of about 240,000 international units of vitamin A for a year or more without the development of symptoms and that they may not tolerate daily doses of 500,000 international units of vitamin A for even short periods of time. On the basis of body weight, this would indicate that the toxic daily dose of vitamin A for an adult would lie between 1,500,000 to 3,000,000 units daily.

CORONARY THROMBOSIS

To the Editor:—A patient was treated for coronary thrombosis. He was kept at rest for a long time and has been advised to exercise moderately all this year. He went to a heart specialist in another city, who said there was no evidence of his ever having had coronary occlusion. He went to another city and had another heart specialist examine him. This heart specialist said there was no trouble at this time and doubted that there ever had been a coronary occlusion; however, after looking at the electrocardiogram which the first internal medicine specialist had made, he said that he felt there was some evidence on the electrocardiogram that there had been a coronary occlusion. This left the patient confused, so he went to still another heart specialist, who stated that there was no evidence of coronary occlusion and there never had been. His "attack" occurred in February 1949. 1. Does a normal electrocardiogram at this time preclude any possibility of there ever having been a coronary occlusion? 2. If an electrocardiogram taken at this time shows no evidence of there ever having been a coronary occlusion, can he safely assume that he is completely out of danger and forget that he may ever have had heart trouble? Each of these so-called heart specialists has a good reputation in his own locality. Karlton H. Kemp, M.D., Texarkana, Ark.

ANSWER.—A normal electrocardiogram does not preclude the possibility of there having been coronary occlusion in the past. This is not an unusual occurrence. It is necessary, therefore, to have adequate information, preferably by direct comparison of the electrocardiograms in the past at the time of the episode that might have been thought to have been coronary occlusion with the newer record before definite conclusions are made. Second, if there is no other evidence of heart disease and the present electrocardiogram is normal, a fairly good prognosis may be given even though coronary occlusion may have occurred in the past. This prognosis, however, cannot be given without qualifications, for recurrence of coronary heart disease is common. One should in this instance follow the middle line of common sense measures, periodic examinations (probably once a year would suffice), careful review of family history and possibly studies of metabolic nature, including content of cholesterol in the blood.

TYPHOID VACCINATION

To the Editor:—Please comment on the so-called rapid method of vaccination against typhoid. This consists of increasing vaccine doses each day for three days. It appears to have been used recently in threatened epidemics. M.D., Texas.

ANSWER.—Naumer and Nerb (Reactions and Agglutinin Responses to Various Methods of Typhoid Immunization, *Arch. Pediat.* 60:63 [Feb.] 1943) reported on what may be termed a rapid method of typhoid vaccination. This consisted of injecting four doses of vaccine intracutaneously. The inoculations were 0.1, 0.2, 0.3 and 0.4 cc. given every other day; the total amount of vaccine for one immunization was 1 cc. After the injection of vaccine intradermally agglutinins appeared in the serum within one week, reached their peak at three weeks and then gradually diminished so that by six months the titer was low. These results were practically the same as those after immunization by the customary subcutaneous route; moreover, unpleasant reactions occurred less often. Results were poor with the oral method of administering vaccine.

CHLORAMPHENICOL AND PARATYPHOID

To the Editor:—Are there reported cases of paratyphoid treated with chloramphenicol? Robert S. Srigley, M.D., Hollis, Okla.

ANSWER.—To date there are no reports printed on chloramphenicol in the treatment of paratyphoid. In general the results obtained in treatment of infections produced by Salmonella organisms, other than infection with Salmonella typhosa, have not been satisfactory, when either chloramphenicol or aureomycin have been used.

MULTIPLE SEBACEOUS CYSTS OF THE NECK

To the Editor:—I would like information concerning the treatment of sebaceous cysts by means of an electric current. Would it be practical to consider this form of treatment for multiple acne cysts of the back of the neck? A man, age 21, is in excellent physical condition and has no skin blemish other than many small to nickel-sized cysts on the back of the neck. Acute infection in one or more of these cysts occurs frequently. Irradiation, 75 r, three doses, at weekly intervals, has been of no benefit. Treatment has been provided by many physicians over a two year period. The cysts remain. Rarer causes of granulomatous lesions have been excluded by biopsy. Excision is impractical, because of the large number of cysts, but may be necessary, or incision and curettage may be done for some. I would like an evaluation of the methods of handling this case. M.D., California.

ANSWER.—The "electric current" treatment for sebaceous cysts was advocated by Danna in the *New Orleans Medical and Surgical Journal* for July 1945. Using a regular diathermy machine, he employed the unipolar desiccating current for small sebaceous cysts and the bipolar current for larger lesions. The needle is inserted into the cyst cavity, and the current is then applied in an amount sufficient to produce a white eschar around the needle. It is said that in this way there results less of a scar than from surgical excision. Many physicians advocate this method, but equally as many, if not more, physicians consider it less satisfactory than surgical removal, particularly with respect to scar formation.

Some physicians advocate this method for the treatment of cystic acne lesions also, but experience with it for these is still limited. Such lesions usually are treated by a combination of methods, including irradiation, the administration of antibiotics, dietary regulation, cryotherapy with solid carbon dioxide, proper cleansing, the application of exfoliating and astringent lotions, surgical incisions with restraint, hormonal therapy, supportive measures and treatment directed against specific abnormalities, as anemia or constipation. All these methods are used singly, concurrently or interchangeably over a long period of time, and the final results usually are rewarding.

PREVENTION OF BRUCELLOSIS

To the Editor:—A patient of mine bought a milk cow, and his children have been drinking the milk for several weeks. The cow has been found to have an active Bacillus abortus infection. What can be done to protect the children against developing undulant fever? Is there an effective vaccine which can be used for prevention or treatment, and, if so, is it too late now to use it? Ray S. Wycoff, M.D., Lexington, Neb.

ANSWER.—There is no prophylactic vaccine that will reliably prevent infection of persons exposed to brucellosis. Since milk cows usually excrete Brucella into the milk in aperiodic showers, the ingested milk from one infected cow is more likely to cause disease than the same milk diluted by other milk from a herd. Heating the milk to near the boiling point and then rapidly cooling it, or some form of local pasteurization should be instituted regardless of the present state of health of the children, provided the cow is to remain as the source of milk supply. Since there is no known way to prevent brucellosis after consumption of infected milk, efforts should be directed toward recognition of early signs and symptoms of the disease, and base line agglutination tests and brucellergen (1:20,000) tests performed at once, with repetition of the agglutination tests only, and the performance of blood cultures or marrow cultures on the appearance of symptoms that are compatible with this infection in children.

MIXING ANTIGENS FOR HYPODERMIC INJECTION

To the Editor:—Would it be possible to combine pollens, epidermals and house dust in a single hypodermic injection in desensitizing an allergic patient without any harm? H. L. Lockner, M.D., Chatsworth, Ill.

ANSWER.—It is not clear whether mixing of the antigens in the vial in a definite proportion is meant or mixing of them in the syringe at the time of the injections. It is not possible to carry out rational desensitization therapy by mixing in a vial seasonal and nonseasonal antigens or even seasonal antigens pertaining to different seasons. In pollen therapy it is the aim to administer the maximum dose prior to the season, while during the season the dose is usually reduced. A mixture in which the proportions of the individual extracts must be fixed does not permit the necessary adjustments. Mixing the extracts in the syringe at the time of injection has the advantage over the fixed mixture because the proportions can be varied. On the other hand, it is generally inadvisable to mix in the same syringe dissimilar extracts. One is thus unable to gage the

dose of the individual materials, since the local reaction is one of the guides for such dose determination. In case of a constitutional reaction it would not be possible to tell which extract is responsible for it and requires reduction in size. Furthermore, injecting several potent antigens in the same site may result in unnecessarily large local reactions. One could mix (in the syringe) the epidermal and house dust extracts for injection into one arm and inject the pollen extract separately into the other arm.

INTERCOURSE WITHOUT SENSATION

To the Editor:—A man aged 22, who has been married fifteen months, complains that he experiences no sensation while having intercourse. He has a normal, vigorous erection and is able to effect penetration. He gives no history of venereal disease. The presence of a urethral discharge at any time is denied. He is well developed. The penis is of average size. The testicles are normal and well descended. A complete neurologic examination did not reveal anything suggestive of disease. Rectal examination disclosed an apparently normal prostate with no tenderness. The result of a Mazzini test was negative. The urine is normal. Examination of seminal fluid revealed a volume of 3.1 cc., *ph* 7.5 and 106,200,000 cells per cubic centimeter. Spermatozoa were present and actively motile in about 85 per cent of the total specimen. About 5 per cent of the total spermatozoa consisted of heads without tails, pinheads and curled tails at 37 C. Motility was still present at the end of one hour in 85 per cent of the total. What else can be done?

Francis V. Itri, M.D., Brooklyn.

ANSWER.—The pertinent investigations in this problem indicate no evidence of structural disease. The ability to obtain and maintain an erection and to effect normal intercourse excludes the possibility of structural disease of the central nervous system, particularly in the absence of abnormal findings on routine examination. There is presumably no perianal or genital sensory disturbance and no bladder or bowel symptoms. In these circumstances further investigation of the genitourinary functions is unnecessary. This patient should be seen by a psychiatrist and further investigations directed toward an understanding of his personality and emotional structure.

ILEOJEJUNITIS

To the Editor:—A boy age 16 has regional enteritis and a painful intestinal spasm about every third night. The pain requires meperidine hydrochloride and chloroform for relief. A well known clinic was unable to make a diagnosis. He was operated on elsewhere, and about 20 feet (6.1 M.) of intestine was found to be pink, the mesenteric glands were enlarged and some were caseous. No gut was removed. The boy has excellent color and appearance and normal weight and digestion. The colicky pains have been present for five months.

Piere Redman, M.D., Mena, Ark.

ANSWER.—Apparently the entire ileum and jejunum are involved in this boy. The length of the entire small intestine is about 13 feet (3.96 M.). The description of "20 feet of intestine" is to be interpreted as a diffuse ileojejunitis. The mesenteric glands in ileojejunitis are never caseous. Caseation arouses suspicion of intestinal tuberculosis. The boy should be tested for possible tuberculosis. Roentgenograms of the chest should be studied. Treatment should include deep injections of crude liver extract and vitamin B complex, 2 cc. of each every other day, high protein diet, much sunshine and physical rest. Codeine should be used for the pain. There is nothing to be expected from further surgical intervention. The prognosis is fair. About 25 per cent of such patients recover completely with conservative therapy.

CHEST ROENTGENOGRAMS DURING PREGNANCY

To the Editor:—If roentgenograms of the chest are to be done routinely in all prenatal cases, at what time during pregnancy should they be taken?

R. S. Marino, M.D., Bristol, Conn.

ANSWER.—Chest roentgenograms should be taken routinely during early pregnancy unless the patient has been examined just prior to pregnancy, which is preferable. There is little or no danger to the growing embryo at any stage from so small a dose of roentgen rays. If one is concerned about this point, the roentgenogram may be taken at two to two and one-half months pregnancy, at which time the fetus is well developed and it is still early enough to plan for abortion if the observations warrant it. Abortion by curettage is not recommended after three months. If the patient is seen late in pregnancy the roentgenogram is still of value to one in deciding limitations of activity or other therapy. Not to be forgotten in chest roentgenograms are the cardiac as well as chest conditions. An enlarged heart or a peculiarly shaped heart shadow may be the first signs of congenital heart defects or even decompensation.

LOSS OF SENSATION IN HANDS

To the Editor:—A 70 year old farmer, who has never been seriously ill, complains of loss of sensation, numbness, burning, stinging and pain of the fingers of both hands, particularly the left. There is a weakness of both hands, the grip of the left being extremely weak. The palm of the left hand is somewhat tender on pressure and thicker than on the right. None of the fingers can be straightened without pain, and the joints are enlarged. There is severe atrophy of the right thenar eminence, which is the major clinical finding with the exception of missing tactile sensation of varying degree in the finger tips approaching normal sensation as one progresses toward the wrist. The patient states, "Below the wrists I am all wrong; above the wrists I am okay." He has burned and cut himself severely several times because of his loss of sensation. Please advise.

M.D., New York.

ANSWER.—The loss of sensation plus the weakness and atrophy of the muscles of both hands progressing slowly would indicate some disturbance in the spinal cord at the level of the sixth, seventh and eighth cervical segments. The lesion must be extensive to cause such changes, and it is unusual for a lesion at this level not to be expansive enough to cause pressure on the lateral columns with secondary spasticity of the legs, increased deep reflexes and Babinski sign. There is nothing in the history to indicate the condition of the patient's legs, which would be an important factor if the disease is in the spinal cord and not peripheral. If one considers, moreover, the peripheral aspects as a possibility, the lesion must be a complicated one below the level of the wrist, for there is decided weakness, atrophy and loss of sensation. Missing from the record also is any description of the reflexes in the arms, which would help localize the process. In favor of a local lesion in the hands is the enlargement of the joints with pain on extension of the fingers. The burns on the hand without sensation are suggestive of syringomyelia with the lesion again at the level of the spinal cord indicated previously.

A definite diagnosis cannot be made in a case of this type without data consisting of results of a more complete neurologic examination, giving the condition of the reflexes in the arms and the legs, an examination of the cerebrospinal fluid and a roentgenogram of the lower cervical spine. It is possible that there would be found sufficient spondylitis in the cervical region to account for local pressure on nerve roots and, secondarily, on the changes found in the hands. There is some indication that the root most involved would be the sixth cervical root on the right, but the lesion is more extensive than that and is also bilateral. Spinal cord tumor is also a possibility, and, if any indication of a block in the cerebrospinal fluid pathway were found on lumbar puncture, myelograms are indicated. Conditions somewhat similar to that described are also seen in the polyneuritis of the arms associated with leprosy, and, although this does not seem a possibility in the case described, one would have to think of all types of chronic neuritis that would lead to symptoms of weakness and loss of sensation.

SUSPECTED PERIARTERITIS NODOSA

To the Editor:—A 46 year old retired Army physician, after an attack of pneumonia 20 years ago, began having bronchial asthma. From six years ago to four years ago he had an attack of lobar pneumonia, and two attacks of bronchopneumonia. Starting four years ago, he began to have attacks of fever, with temperature up to 102 F., lasting one to five days. Four months after moving to California (three years ago) he became completely free of fever for seven months, but it has returned and, in the last six months, attacks are longer in duration and periods of freedom last but a week or two. Overexertion seems to precipitate an attack. He has lost 30 pounds (14 Kg.). During an attack he suffers from malaise, weakness, general aching, cramps in the legs and slight increase in sputum, but he is almost completely relieved of asthma. He has been studied in two Army hospitals, with no other diagnosis than asthma. Two bronchoscopies have not revealed anything significant. The chest roentgenogram shows slight, questionable emphysema. Two iodized oil instillations have shown no bronchiectasis or bronchial stenosis. During an attack there is an elevation of the sedimentation rate but no leukocytosis and only slight ((5 per cent) eosinophilia. Can bronchial asthma, per se, account for this entire picture?

David McC. McKell Jr., M.D., Saratoga, Calif.

ANSWER.—Asthma alone cannot account for the clinical picture presented here. One would have to consider in the differential diagnosis many possibilities in the causation of prolonged and obscure fever. However, one particular possibility which one must consider is periarteritis nodosa. Many of the symptoms mentioned would be compatible with that disease. Asthma is not infrequently associated with periarteritis, frequently producing in such associated combinations a hypereosinophilia. Nevertheless, a low eosinophil count can be present. While the average patient with periarteritis nodosa becomes worse more rapidly, many have a prolonged course and some undoubtedly recover. A biopsy, probably of muscle, might give a clue. The subsidence of the asthma during the febrile stage is a common phenomenon with most infectious diseases.

CORONARY INFARCT AND DIABETES

To the Editor:—For three years I have treated a diabetic woman who required 20 units of protamine zinc insulin every morning. Two months ago she had a posterior coronary infarct. After a stormy course, she now is getting along satisfactorily, without any insulin. What effect did the coronary infarct have on her diabetes? Is a relapse of the diabetes to be expected?

M.D., Ohio.

ANSWER.—If the patient in question had proved diabetes prior to the myocardial infarction, it would still be present. It is likely that the improvement in her diabetic condition is the result of closer supervision and, therefore, probably better control of the diabetes during treatment for the heart condition.

It is not uncommon for diabetes to be made worse temporarily during the acute stage of myocardial infarction. However, in this, as in any condition in which patients are kept for relatively long periods under close supervision and, therefore, often better dietary control, improvement in the diabetic status may occur. One would now expect worsening of the diabetic state only if certain influences supervene; among these would be laxity in diet, increase in body weight to the point of obesity, infection and other complications.

ASTHMA AND TRAUMA

To the Editor:—My patient had an automobile accident. Examination revealed ecchymosis and contusions of the chest, back and left shoulder, painful respiratory movements, and traumatic pleurodynia. He was disabled for twenty-five days. The patient previously had asthma but had been asymptomatic for six years. Five days after the automobile accident the asthmatic attacks recurred and have been present at irregular intervals. Could the trauma sustained in this accident initiate these attacks?

Theodore Kaplan, M.D., New York.

ANSWER.—It is conceivable that a contusion of the chest may be responsible for recurrence of the asthma in this case. The trauma might be responsible for actual injury to the respiratory apparatus or to the autonomic nervous system regulating the size of the bronchi. Comparable situations are the production of asthma from mechanical irritation of the bronchial mucosa by inorganic dust and the localization of allergic urticarial lesions at the site of mechanical irritation. It is also a possibility that the trauma may act as a psychosomatic factor. Textbooks refer to the possible connection between trauma and asthma.

SNAKE BITES

To the Editor:—What are the present ideas on treatment of venomous snake bites? I live most of the year in a citrus grove in Florida. An occasional coral snake has been seen nearby; some water moccasins are in this area, and it is well known that in the interior, not more than 7 miles from my grove, along the flats of St. Johns River there are plenty of rattlers. I would like to take precautions, as I am 10 miles from a telephone and 12 miles from a colleague. Should I have at hand some antivenin?

R. H. Gilpatrick, M.D., Cocoa, Fla.

ANSWER.—Best first aid treatment for venomous snake bites is to immediately apply a tourniquet just above the bite and cross cut incisions through the fang marks about ¼ by ¼ inch (0.6 by 0.6 cm.) These should go entirely through the skin. Mechanical suction is the best method to remove this poison. If there is no mechanical suction cup available, mouth suction is recommended. First aid kits are available. Antivenin is an agent useful as an adjunct in the treatment of snake bite. The present commercially prepared antivenin is polyvalent and is used in treating bites from copperheads, rattlesnakes and moccasin snakes.

CONGENITAL ABSENCE OF FINGER NAILS

To the Editor:—A man, age 34, has congenital aplasia of all finger nails. Certain nails are virtually absent, while others are diminutive and deformed. There is no family history of this condition, but one of his children, a boy aged 3, has a similar condition of four finger nails, the remainder being apparently normal. Two other children, one male and one female, have normal-appearing nails. This patient has been subjected to many treatments elsewhere, including various hormone injections, without benefit. Is this a well recognized familial disease, and is any therapy to be recommended?

Earle H. Webster, M.D., Hyannis, Mass.

ANSWER.—Aplasia or absence of the finger nails is a familial congenital malformation for which there is no recognized therapy. It has been observed in as many as 11 persons distributed throughout three generations of one family. In some families the condition is dominant, and in others it is recessive. Absence of the finger nails may be associated with underdevelopment of the nails. In certain families it has been accompanied with absence or defect of the patella.

STAIN FOR TRICHOMONAS VAGINALIS

To the Editor:—What is the method of staining Trichomonas vaginalis (Shunk's flagella stain)? I have the stain and mordants A and B, but have been unable to learn the procedure of staining.

R. D. Haire Jr., M. D., Roswell, N. Mex.

ANSWER.—Place about 8 drops of solution A (which has been prepared a week or more ahead of time and filtered before use) on the slide and immediately add 1 drop of solution B. A precipitate forms on the slide. The excess mordant is carefully drained off and the stain applied without previous washing. (From Gradwohl, R. B. H.: Chemical Laboratory Methods and Diagnosis, ed. 3, St. Louis, C. V. Mosby Company, 1943, vol. 2, p. 1096.)

A stain for flagella preferable to the one referred to is the method recently outlined by Greenblatt in the *Journal of the Medical Association of Georgia* (**38**: 95, 1949). It is a simpler stain than Shunk's and yields excellent results.

PREMENSTRUAL TENSION

To the Editor:—A woman 43 years of age experiences marked redness and soreness of the tongue, buccal mucosa and lips one week before the menstrual period. Simultaneously she notices redness and burning of the rectal and vaginal mucosa. The menstrual flow is slightly less than usually observed. The patient is nervous and complains of headache at this time. She is relieved by doses of estrogenic material, and vitamin B complex. Any suggestion would be appreciated.

S. R. Schooley, M.D., Shaverton, Pa.

ANSWER.—This woman appears to present the syndrome known as premenstrual tension with predominance of symptoms in the mucous membranes. While the condition is rare, there have been reports of menstrual dermatoses, such as herpes, urticaria, acne, erysipelas, angioneurotic edema, erythema and pigmentation, but this consultant has not found a report of a case similar to the one described. The ammonium chloride treatment of premenstrual tension may be tried: The patient should refrain from adding table salt to her food during the last two weeks of the menstrual cycle and should be given 0.6 Gm. of ammonium chloride three times daily.

GRINDING OF THE TEETH

To the Editor:—In the answer to the query on "Grinding of the Teeth," in *The Journal*, Dec. 17, 1949, page 1196, the emphasis was incorrect. While in some cases physical factors may play a part, the emphasis ought to be on the psychologic aspects of the child's home situation. Children grind their teeth because they want to bite something. In my opinion, this if often due to hostility. By 2 years of age all normal children become orally aggressive, and when they are frustrated they wish to bite. When the child bites the frustrating parent the child is punished. In fear the child then bites himself. If this too is not accepted by the parent, the child expresses his rage in a second refinement, i. e., he grinds his teeth. If we are to be of real help, we must attack the real cause. The child's real needs are for an increase of affection and understanding. Any physician can project himself into the child's emotional situation and thereby gain an understanding as to why the child feels frustrated and angry. He must do this without making the parents feel they have been bad parents, and he must study the case long enough to see that what needs to be done has been done. In many cases the results will be excellent after only a few interviews. In other instances, the emotional problem of the child and of its parents is so deep seated that the services of a more experienced psychotherapist will be needed.

James J. Bulger, M.D., Great Falls, Mont.

SPINAL HEADACHE

To the Editor:—The comment on prevention and treatment of "spinal headache," in *The Journal*, January 21, page 220, was accurate and sound, as far as it went. However, two important points were not brought out. One concerns prevention, the other concerns treatment. Having done about 2,000 spinals (as chief of the venereal disease division of a large health jurisdiction) and having in consequence nursed about 80 patients through the rigors of postspinal headaches, each of which was blamed—and perhaps rightly—on me, I feel that these two points should be touched on. First, with respect to prevention, a slender needle should be used, not larger than size 20. Fluid is withdrawn more slowly, and there is less likelihood of postpuncture seepage. In my experience this definitely reduces the incidence of headache. If postspinal headache does occur, 7½ grains (0.48 Gm.) of caffeine sodium benzoate should be slowly injected intravenously. This often gives almost instant relief. Sometimes relief is permanent, more often not, and a second injection may be needed after a day or two. It is important for the patient to continue lying flat in bed, without a pillow, as long as headache is severe, regardless of whether caffeine is injected. In most cases cessation of headache, following caffeine injection, is dramatic. Even before the injection is completed, the patient will look at the doctor with an expression of surprise, not quite believing that his headache has really vanished. The patient smiles, the doctor smiles (he's usually a little surprised, too) and there is good feeling all around.

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